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THE NORTH CAROLINA AREA HEALTH EDUCATION CENTERS PROGRAM

**PROGRAM PLAN
JULY, 1990-JUNE 1995**



For more information contact:

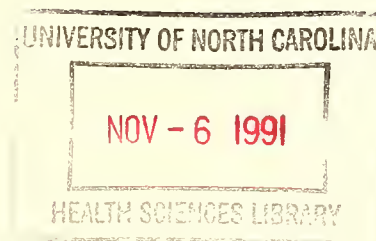
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The North Carolina Area Health Education Centers Program

Program Plan

July 1, 1990 -- June 30, 1995



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Executive Summary

N. C. AHEC Program Plan: 1990-1995

Introduction

This 1990-1995 Plan for the North Carolina Area Health Education Centers (AHEC) Program is a composite of the individual plans which were developed by each of the nine AHECs in the state and by the health science schools associated with the program. The purpose of the statewide plan is to present a broad framework for program plans which address current and emerging issues in health education and training. Supporting documentation of detailed program implementation plans is available from the Central Administrative Office of the N. C. AHEC Program.

The North Carolina Area Health Education Centers (AHEC) Program, established in 1972, is a unique partnership between the university health science center and the community in an effort to improve the geographic distribution and retention of well-trained health professionals and support personnel to meet the primary medical care needs of the people of North Carolina. At the present time nine AHECs help serve the health manpower development needs of North Carolina. These are (1) Mountain AHEC, (2) Northwest AHEC, (3) Charlotte AHEC, (4) Greensboro AHEC, (5) Wake AHEC, (6) Area L AHEC, (7) Eastern AHEC, (8) Fayetteville AHEC and (9) Wilmington AHEC.

Under the leadership of the Dean and the faculty of the School of Medicine at the University of North Carolina at Chapel Hill, the N. C. AHEC Program and its nine area health education centers has been developed in cooperation with the other UNC-CH health science schools at Chapel Hill (Dentistry, Nursing, Pharmacy and Public Health), the Duke University Medical Center, the Bowman Gray School of Medicine of Wake Forest University and the East Carolina University health science schools (Medicine, Allied Health and Social Work, and Nursing).

Also included in this statewide educational program are community hospitals, health departments, area mental health programs, various service agencies, other university campuses, community colleges, technical institutes and practicing professionals and support personnel.

Since its inception in 1972, the N. C. AHEC Program has demonstrated its ability to adapt to meet changing community needs without sacrificing its basic mission or its primary

focus on health professions education and training. The mission of the North Carolina AHEC Program, which has remained constant since 1972, is as follows:

To provide education and training to meet health manpower needs, through collaborative relationships between educational institutions and service institutions.

To target its educational activities toward the retention, geographic distribution, specialty distribution and quality of health care professionals and support personnel of all types, with attention given to the need for improved minority representation in many health fields.

To maintain and foster collaborative relationships with other programs and agencies devoted to the planning and delivery of community health services and health sciences education, in the context of AHEC's primary focus on health professions education.

Education and Training Issues

During the period 1990-1995, the North Carolina AHEC Program will undertake programs consistent with its mission of improving the geographic distribution, retention, and quality of health care providers throughout the state. At the same time, the N. C. AHEC Program will adapt its programs to the changing health care environment and sharpen its focus on important interdisciplinary health issues of the 1990s.

Health Manpower

Virtually every health care discipline is adversely affected by problems associated with shortages in manpower resources.

Some of the more pressing health manpower issues which must be addressed during 1990-1995 include the following:

- A worsening supply of primary care physicians particularly in the more rural areas of the state.
- Accessibility and availability of obstetrical care for women in rural areas and the stability of services for women with high risk pregnancies.

- Continued problems in recruitment, utilization, and retention of nurses.
- Shortages of most types of allied health manpower, including dental auxiliaries, resulting from lower enrollments in training programs and continued high turnover in health care institutions.
- Shortages of qualified health professionals of all types in public health departments and community mental health centers.

Other Educational Issues

In addition to health manpower issues a broad range of education and training issues will also have an impact on AHEC programming.

The rapid expansion of the health science knowledge base, escalation in the growth and use of modern technologies, and changes in health care services are profoundly affecting both the process of health science professional education and the continuing education of the practicing health professional. There is, for example an increasing educational need for new curricular designs and learning opportunities for ambulatory-based health professions education for all health science students. There is, in addition, a growing emphasis and interest in the incorporation of a "population-based perspective" into the curriculum which reflects the critical health issues facing the citizens of North Carolina and the health care professionals and support personnel who serve them.

Related issues affecting the educational process include:

- The need for ready information to both learner and teacher in settings away from the AHEC site, resulting in the local availability of library and other information services in an effective, organized, decentralized manner.
- The importance of individualized learning (and flexible program models) to supplement traditional group continuing education methods.
- The assessment of when of new educational technologies are cost effective, acceptable to learners, efficient, and educationally appropriate.

Goals of the N. C. AHEC Program: 1990-1995

Given the context of environmental influences on health manpower and health education outlined above, the N. C. AHEC Program will have several broad goals in carrying out its mission during the next five years.

Education and Training Programming

- ** The program will conduct and/or facilitate a variety of health education and training programs which (a) conform to the Program's Mission Statement, (b) stimulate an improved environment for professional practice with decreased isolation for health professionals and support personnel throughout each AHEC region, (c) reflect the education and training needs of primary care practice sites in underserved areas; and (d) respond to changing health manpower needs. Expanded efforts will be made to move education and training programs to the ambulatory care setting. The program will support community-based education and training programs at the undergraduate, graduate and continuing education levels in nursing, medicine, dentistry, pharmacy, and the constituent professions in public health, allied health and mental health services.

Interdisciplinary Programming

- ** The program will design, on a regional and statewide basis, interdisciplinary educational activities to address special health education issues such as ambulatory-based health education, aging, AIDS, maternal/child/adolescent health, health promotion and disease prevention, and management education for health professionals.

Minority Representation

- ** The program will encourage and expand the development of activities which serve to increase the representation of minority populations in health care careers.

Information Services

- ** The program will provide information and biomedical communications services through the AHEC Library and Information Services Network which (a) are integrated into the total educational effort of each AHEC, (b) serve as regional informational resources for all types of health manpower and; (c) participate in national and statewide networks for dissemination of health information.**

Network Development

- ** The program will continue the development and evolution of an organizational structure and a style of administration which builds upon collaborative institutional partnerships, utilizes its resources most efficiently, and provides for regular input by AHEC-based faculty, coordinators and staff in decisions influencing their programs and their careers.**

Education and Training Programs: 1990-1995

In accordance with its general mission, one specific goal of the N. C. AHEC Program is to conduct and facilitate a broad spectrum of health education and training activities at undergraduate, graduate, and continuing education levels in allied health, dentistry, mental health, medicine, nursing, pharmacy and public health in each of the nine AHEC regions. These educational efforts, which take place in communities throughout the state, stimulate an improved environment for health care, decrease professional isolation, and allow practicing professionals and support personnel to meet their own education needs on a local and regional level.

Disciplinary Focus

Allied Health

The allied health professions include a wide variety of diagnostic and therapeutic disciplines, many of which are highly technical and skilled. With few exceptions, there are shortages in the available manpower in these disciplines and there are declines in the number of applicants to many training programs. Further, all projections suggest a worsening of the allied health manpower situation during the coming years as demands for most allied health services increase.

During the late 1980s the N. C. AHEC Program cooperated with other organizations in the state to focus constructive attention on the growing manpower crisis in allied health services. With leadership from AHEC, an informal statewide steering committee was organized to examine the issues. Two major statewide invitational conferences for employers, practitioners and educators have generated strategy proposals appropriate to North Carolina. These initiatives will be continued in the 1990-1995 period.

The allied health education and training programs which will be conducted as part of the 1990-1995 AHEC Plan have been designed to respond to the allied health needs of the various regions. The complexity of allied health education, with its numerous professions and levels of training, defies a simple summary. Nevertheless, AHECs will continue to provide opportunities for students in allied health professions at university and community college programs with high quality clinical experiences in community settings.

Dentistry

The issue of dental manpower continues to be a very sensitive one among dental professionals. While the supply of dentists is generally considered to be adequate to meet effective demand, if not need, issues of maldistribution still exist. Metropolitan area oversupply, concurrent with recruitment and retention problems in rural areas, persists. Of greater immediate concern are the continuing problems surrounding the recruitment and retention of auxiliary manpower.

The North Carolina Dental Society has begun a special focus on the problems surrounding auxiliary manpower issues and has initiated a dialogue with the N. C. AHEC Program in an effort to begin a cooperative series of activities. The Program is also cooperating in a statewide survey of dentists and dental auxiliaries which will address the manpower needs and factors in the office setting important to recruitment and retention of dental personnel. Results of the survey will guide future programming.

A variety of AHEC-based opportunities will continue to be available to students from the UNC-CH School of Dentistry. The purpose of these experiences is to broaden the students' perspective on the practice of dentistry and on the alternatives available within the profession so that when they enter practice, they may be responsive to the needs of the underserved populations and will consider

practicing in an underserved geographical area or institutional setting.

The primary thrust in continuing education will be to increase the opportunities and access to continuing education for the dental assistant and dental hygienist. AHECs will continue to provide a comprehensive array of quality educational services for dental practitioners and their auxiliaries.

Medicine

Substantial progress has been made since 1972 in overcoming the problems of aggregate supply and geographic maldistribution of physicians in North Carolina. During the period 1972 to 1986, North Carolina increased its total supply of physicians and primary care physicians, in both urban and rural counties, at a rate considerably greater than the rest of the United States. Although these long range trends are positive, more recent indicators suggest that some of the most rural counties of North Carolina are experiencing a decline in the number of primary care physicians.

The AHEC Program is working closely with the four schools of medicine to examine the recent deterioration in the geographic distribution of primary care physicians, especially family physicians. One conclusion reached from these discussions is that the education of medical students and residents needs to be moved more into the ambulatory care setting in selected private group practices, faculty-run group practices, rural health centers, county health departments, hospital out-patient departments, and other sites.

This initiative, as part of the 1990-1995 AHEC Plan, will usher in Phase II of the AHEC Program. In Phase I, medical education was decentralized -- but largely to the AHEC hospitals and to selected physicians' offices. In Phase II the entire educational process will move even more into the community practice setting.

Students enrolled in the four medical schools in North Carolina will continue to rotate through the N. C. AHEC regions for their community medical experiences as they have in previous years. At present, the number of residency opportunities and the fields in which they are offered would appear to be in reasonable consonance with the number of students finishing their medical education in the state. No change in the programs offered in the previous five-year plan is contemplated at this time. Continuing education

will remain a high priority for physicians, with particular attention paid to offering high quality programs throughout the state in formats which meet the specific needs of individual practitioners. The challenge of maintaining the intellectual and educational character of the community environment that helped attract physicians to North Carolina will be a critical factor in their retention.

Mental Health

The N. C. Division of Mental Health, Developmental Disabilities and Substance Abuse Services administers public services through state psychiatric hospitals, centers for persons with mental retardation, alcohol and drug rehabilitation centers, a long-term-care facility and forty-one Area Programs which deliver local services. The system faces chronic manpower shortages associated with the increased demand for community services, high turnover and unfilled vacancies for virtually every occupational area.

Since 1985, the N. C. AHEC Program has received special state funding to bring its educational services, training programs, and information services to the community mental health facilities in the state, with the goals of increasing the linkages between academic and practice settings, of improving the professional practice environment for mental health professionals, of enhancing the manpower development of the public mental health system and thereby increasing the access to appropriate care for citizens in all communities.

AHEC supports the rotation of psychiatry residents, and in the case of one school, doctoral psychology interns, from the four medical schools to community mental health facilities in North Carolina. The goal of these training experiences is to expose the physicians in training to the challenges and opportunities of community psychiatry in North Carolina and to interest them in selecting such a practice setting after completing their residency training at the university. During 1990-1995, AHEC will work with the departments of psychiatry to expand the rotations to new sites in the AHEC regions, and will seek the expansion of those rotations to represent a more significant commitment of resident time in off-campus community settings. AHEC also supports the rotation of graduate social work students to receive some portion of their training in mental health settings.

Continuing education and technical assistance will continue to be a major focus for the mental health activities of the AHECs and their affiliates at the

universities. This continuing education will include programs targeted at specific disciplines as well as multidisciplinary programming focused on treatment, management and assessment issues.

Nursing

During the past decade nurses have been asked to undertake an increasingly complex and demanding set of roles in the delivery of health care. Meanwhile, the shortages of nursing personnel reported in 1988-1989 were more serious than those previously encountered because although the supply of registered nurses continues to grow in North Carolina, that supply has not kept pace with the demand.

The 1989 session of the North Carolina General Assembly appropriated funds for nursing scholarships and other new initiatives designed to enhance recruitment into nursing, facilitate educational and career mobility, encourage the efficient and appropriate utilization of all health services personnel, and improve the professional practice environment in order to retain nurses in the profession. The North Carolina AHEC Program was identified in many parts of the legislation and asked to expand or develop a broad range of nursing initiatives in such areas as clinical site identification and support, preceptor training, health manpower development, retention and improvement of the work place environment, maintaining and improving nursing excellence, educational mobility and career advancement. Initiatives in these areas, and others, are now being implemented and will be evaluated for continued programming during the 1990-1995 period.

The provision of continuing education designed to improve the quality of nursing service and the professional environment for the practice of nursing, for all levels of nurses, will remain a high priority. In addition, the N. C. AHEC Program will continue to promote innovative off-campus baccalaureate and masters opportunities, initiated in collaboration with the schools of nursing in the state.

Pharmacy

Although the ratio of pharmacists to population in the state is slightly above the national average, recent studies suggest that there are vacancies in hospitals and community pharmacies throughout the state. The major manpower concern in pharmacy is to continue to enhance the quality of pharmacy practice. The major focus for 1990-1995 will be on programs which will enable the practicing pharmacist to

provide comprehensive patient-oriented pharmaceutical services to both the patient and other health professionals. During 1990-1995 the N. C. AHEC Program will support the academic internship program of the UNC-CH School of Pharmacy which provides each student with a full semester of community-based training during the senior year. Clinical training in the AHECs for Doctor of Pharmacy and graduate pharmacy students will also be expanded during this period. Planning for offering extramural Master of Science and Doctor of Pharmacy degree programs also will occur during the next five years. One or both programs may be considered for implementation during this time. Finally, continuing education for practitioners across the state will remain a major activity of the AHEC-based pharmacy faculty and their colleagues in Chapel Hill with the addition of curricular programming, certificate education, and mini-residency programs.

Public Health

Shortages of physicians, nurses, sanitarians and allied health professionals in public health departments have been reported across the state. Because of widespread concern about the public health system in North Carolina, a special legislative study commission on public health was named in 1989 to make recommendations to the 1991 legislative session for improving public health in the state. The work of this study commission will determine the direction of public health in the state and will guide future efforts of AHECs.

Public health issues affect large and varied segments of our society. They range from the monitoring of private water sources, to the disposal of toxic and hazardous wastes, to AIDS prevention and infant mortality. The difficult public health problems to be addressed, the maldistribution of trained public health professionals, the population served and budget constraints, make the public health agency's job increasingly difficult. This will require that the AHECs focus on several areas during the next five years: (1) providing up-to-date information and education on current public health issues of concern including manpower; (2) cooperatively working with other organizations to provide continuing education opportunities for public health personnel; and (3) supporting the efforts of North Carolina's public health system and the UNC-CH School of Public Health to promote public health practice in North Carolina.

The principal public health educational efforts through AHEC will continue in the areas of community experience for graduate and undergraduate students earning the Masters of

Public Health degree and the B.S. in Public Health and continuing education for public health professionals. In addition to the on-campus M.P.H. Program of the UNC-CH School of Public Health, the off-campus M.P.H. will continue to be offered in collaboration with AHEC sites throughout the state. AHECs will continue to provide regionally accessible and affordable continuing education programs of high quality relating to public health practice for professionals and public health agencies in the AHEC regions. Whenever appropriate the AHECs will work with the UNC-CH School of Public Health in joint planning of education programs, including annual series for sanitarians, public health nurses and others.

Interdisciplinary and Health Issues Focus

There are several issues that have been identified as being critical to health professions development and education for the period 1990-1995. Topics deserving particular and systematic attention include ambulatory-based health professions education, maternal/child/adolescent health, aging, AIDS, health promotion/disease prevention, and management education for health professionals.

AHEC has demonstrated that it can be effective in addressing these interdisciplinary issues in several ways:

1. developing multidisciplinary community-based experiences and identifying sites for student and resident training;
2. developing special education and training for community practitioners which would address local and regional needs;
3. serving as a focus for the coordination of existing educational resources, and;
4. expanding technical assistance, consultation, information services and educational resources to address the areas.

Minority Representation in Health Fields

Efforts to improve the supply, geographic distribution, and specialty distribution of health manpower mandate that the program continue initiatives to increase minority representation in health professions. The N. C. AHEC Program is committed to encourage and expand the development

of activities which serve to increase the representation of minority populations in health care careers.

A statewide AHEC work group on Minority Representation in Health Careers has been established to share information about efforts underway, to discuss pilot projects and new programmatic initiatives, and explore the potential for obtaining additional resources. The work group will act as a forum for discussion of statewide opportunities and the regional experiences of the individual AHECs in addressing the issue of minority representation in health careers. It will also examine existing minority activities in the state and support the active collaboration or linkage of AHECs with the on-going efforts of other institutions, programs, or organizations; assess the potential for effective and appropriate regional pilot programming efforts; and assist in the development and coordination of regional minority resources by identifying minority health professionals and support personnel who might participate in regional advisory committees or speaker's bureaus and serve as role models, mentors, or be involved in experiential educational externships, internships, or formal training.

The AHECs have enrolled a number of minorities in AHEC-sponsored primary care medical residency training programs. Efforts will be made to maintain this accomplishment where it has occurred, and to increase enrollments in the other programs. Expansion in the participation of minority health professionals and support personnel at AHEC-sponsored programs will be emphasized. Specific attention to the needs of minority health personnel will be encouraged as will the design of programming that emphasizes the special health care needs and problems of minorities and disadvantaged population groups. The N. C. AHEC Program is committed to increasing minority representation on the various regional advisory committees and to continue to seek minority faculty and staff when vacancies occur.

Information and Biomedical Communications Services

Library and information services have been developed as part of a mutually supportive network with the university health science libraries, regional medical libraries, and other components of the national biomedical communication network. The continued maintenance and further development of up-to-date libraries in each of the nine AHECs is critical to the success of the 1990-1995 Plan of the Statewide AHEC Program.

Libraries and access to information and biomedical communications services will continue to serve many

important functions, namely (1) a resource to students and residents on rotation from the university, (2) a resource for students and residents based at the AHEC, (3) a resource for faculty and staff based at the AHEC, (4) a resource for practitioners and support personnel within the AHEC regions and (5) a resource for the statewide AHEC Program through various inter-AHEC exchange relationships.

During the period 1990-1995, the N. C. AHEC Program will provide information and biomedical communications services through the AHEC Library and Information Services Network which (a) are integrated into the total educational effort of each AHEC, (b) serve as regional informational resources for all types of health manpower and (c) participate in national and statewide networks for the dissemination of health information.

In fulfilling this goal over the next five years, the N. C. AHEC Program will evaluate the services currently provided, will explore ways to enhance or modify current services as appropriate, and will provide new services within the constraints of available funding.

AHEC Organization and Administration

The North Carolina AHEC Program is committed to the continued development and evolution of an organizational structure and style of administration that utilizes its physical and human resources most efficiently in delivering educational programs and services to fulfill its mission. Maintaining North Carolina's investment in the statewide network of health professions education will demand careful attention to the philosophy of program governance, established at its inception in 1972, which will continue into the 1990s.

The N. C. AHEC Program will continue to be the responsibility of the Board of Governors of the University of North Carolina. The program is based in the Division of Education and Research in Community Medical Care in the Office of the Dean of the School of Medicine at the University of North Carolina at Chapel Hill.

Introduction

This 1990-1995 Plan for the North Carolina Area Health Education Centers (AHEC) Program is a composite of the individual plans which were developed by each of the nine AHECs in the state and by the health science schools associated with the program. The purpose of the statewide plan is to present a broad framework for program plans which address current and emerging issues in health education and training. Supporting documentation of detailed program implementation plans is available from the Central Administrative Office of the N. C. AHEC Program.

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Also included in this statewide educational program are community hospitals, health departments, area mental health programs, various service agencies, other university campuses, community colleges, technical institutes and practicing professionals and support personnel.

Mission of the N. C. AHEC Program: 1990-1995

Since its inception in 1972, the N. C. AHEC Program has demonstrated its ability to adapt to meet changing community needs without sacrificing its basic mission or its primary focus on health professions education and training. The mission of the North Carolina AHEC Program has remained constant since 1972.

To provide education and training to meet health manpower needs, through collaborative relationships between educational institutions and service institutions.

To target its educational activities toward the retention, geographic distribution, specialty distribution and quality of health care professionals and support personnel of all types, with attention given to the need for improved minority representation in many health fields.

To maintain and foster collaborative relationships with other programs and agencies devoted to the planning and delivery of community health services and health sciences education, in the context of AHEC's primary focus on health professions education.

Education and Training Issues

In order to achieve its mission, the N. C. AHEC Program has historically supported the systematic collection, analysis and evaluation of both manpower data and health information. The N. C. AHEC Program will continue to work with appropriate state and federal agencies to obtain current health manpower data necessary to target AHEC education, training, consultation and technical assistance activities toward an improved supply, distribution, retention and quality of health manpower of all types.

Wherever possible, the program will assist other agencies, such as state licensing boards, the Health Services Research Center, and the State Center for Health Statistics, that have a primary responsibility for health care and health manpower data collection and analysis. The program will also work cooperatively with each level of the state's health planning process and with other agencies and institutions, such as the Office of Health Resources Development and the National Health Service Corps, which are equally concerned with the distribution and retention of health manpower.

During the period 1990-1995, the North Carolina AHEC Program will undertake programs consistent with its mission of improving the geographic distribution, retention, and

quality of health care providers throughout the state. At the same time, the N. C. AHEC Program will adapt its programs to the changing health care environment and sharpen its focus on some of the most pressing issues of the 1990s.

Since its inception the North Carolina AHEC Program has demonstrated its capacity to identify and respond to local, regional and statewide needs for health professionals. The maldistribution of primary care physicians identified in the early 1970s, the nursing shortage of the early 1980s, and the shortages of personnel in community mental health centers are among the more important health manpower issues that the AHEC Program has addressed. AHEC will work with education and service agencies to address those issues and others as they emerge. The following sections outline major health manpower and health education issues which will be a critical influence on the design and the implementation of future programming.

Education and Training Issues

Health Manpower

Virtually every health care discipline is adversely affected by problems associated with shortages in manpower resources. Some of these problems stem from decreased quantity -- either a shortage in absolute numbers or a maldistribution of personnel; others reflect growing demand; while still others are due to deficiencies in a specialty/technical mix or competence. Many are interrelated and multidimensional. All are pervasive as evidenced by their impact on both large and small organizations in both rural and urban settings throughout the state.

The current manpower situation is complicated by the fact that declining numbers of students are seeking to enroll in many health-related degree or diploma granting educational programs. Such programs, with increasing frequency, are forced to admit candidates from a less qualified applicant pool. To further compound the situation, the number of teenagers, traditionally a prime source of applicants, will continue to decline for at least the next decade. As the overall health care work force continues to expand in both scope and diversity, steps will have to be taken to expand the health manpower resource pool. This expansion of the manpower resource pool might

necessitate innovative protocols for preparing and attracting under-represented populations of black and native Americans, displaced workers from other occupations, and individuals who might be older but who are potentially interested in new or second careers. These trends will be complicated further by technological, economic, and systemic changes which will continue to influence the health care industry and educational agenda. Thus, the N. C. AHEC Program must address several complex manpower issues during 1990-1995. Several examples are listed below:

1. **Medicine:** Hospitals and health care organizations throughout the state are actively seeking physician manpower, often with only limited success. There are early signs of a trend away from primary care medicine and toward specialization as a career choice for new physicians. While the need for family physicians and other primary care doctors, particularly in rural areas, is continuing to grow there are smaller applicant pools for medical schools to consider and a relative reduction in applicants for primary care residency programs within the state and nationwide.
2. **Pharmacy:** A recent study revealed that nearly 20 percent of all pharmacies in North Carolina had vacant positions, with most openings being in

hospital practice and chain-store settings. This problem is likely to become more prevalent in the future since retention of pharmacists in such settings is worsening. Increasing utilization of pharmacists as integral members of the clinical/health care team will place greater demand on current and projected supply.

3. **Dentistry:** The number of dental school applicants continues to decline as does the applicant pool for dental hygiene and dental assistant educational programs. These problems are compounded by the fact that increasing numbers of assistants and hygienists are leaving the discipline in favor of other, higher paying and often more rewarding careers outside the health care sector.
4. **Mental Health and Public Health:** For a variety of reasons, the recruitment and retention of qualified mental health and public health professionals by state, regional and area wide institutions and agencies have been problems for many years. These problems are similar to the situation in nursing and are expected to become even more severe during times of system-wide manpower shortage and overall dwindling resources.
5. **Nursing:** Issues in nursing manpower have been a primary focus of the state legislature and the N.

C. AHEC Program for over a decade. The shortages of nursing personnel reported in 1988 and 1989, however, were more acute, complex and persistent than those previously encountered. Although the supply of registered nurses continues to grow in North Carolina, there are indications that the supply has not kept pace with increased demand. Enrollment in ADN programs has increased but BSN programs still show declines. Increased demand for nursing services at all levels, combined with declining or stagnant enrollment, suggests that nursing manpower initiatives in recruitment, retention, utilization of personnel, enhancement of the work place setting, and educational mobility will be of importance through the 1990-1995 Plan period.

6. **Allied Health:** Many of the Allied Health professions are experiencing manpower problems similar to those mentioned for nursing. With few exceptions, there are both significant shortages in the various Allied Health disciplines and a decline in the number of persons seeking admission to the respective diploma, associate degree, and baccalaureate programs. In addition, there is geographic and institutional maldistribution of available manpower resources.

Of particular concern are the disciplines of medical technology, radiologic technology, respiratory therapy, physical therapy, occupational therapy, speech and hearing and medical records administration. Each of these disciplines is experiencing increasingly serious manpower supply and distribution problems. There are powerful incentives for some Allied Health professionals, notably physical therapists, occupational therapists and speech and hearing therapists, to move from the public sector into the private sector where, typically, greater monetary and professional rewards exist.

In support of efforts across North Carolina to increase the numbers of persons entering the health professions, the N. C. AHEC Program will support the publication of a health careers guide. The purpose of this publication will be to provide information about the many choices in health careers to persons making career decisions. The guide will provide a comprehensive overview of health occupations and training programs in the state, for use by schools, students, hospitals and "career-changers." It will describe the setting and work done in various occupations, the requirements for entry into practice and the prerequisites for admission to training programs. Also, sources of

financial aid for students in health occupations careers will be listed in the guide.

The guide will be distributed to schools, counselors, libraries, hospitals and other organizations. The first issue will be published in September, 1990, under a grant from the Kate B. Reynolds Health Care Trust. The AHEC Program will attempt to identify sources of support for subsequent editions of the guide.

It should be noted that rapidly changing economic conditions, revised policies related to the reimbursement of health care, emerging technology and the development of alternate forms of health care delivery will have an impact on the assumptions upon which current projections of the quantity and types of health manpower needed are based. Assessment of health manpower issues in the disciplines is made with the knowledge that forecasts of health manpower requirements are based on current estimates and data may require modification in the future. The N. C. AHEC Program will remain flexible to respond to any changing needs and educational requirements that may affect students and practitioners involved in AHEC education and training programs.

Education and Training Issues

Other Educational Issues

In addition to health manpower issues which affect health services delivery and the environment for health science education and training, a broad range of education and training issues will also have an impact on AHEC programming.

The rapid expansion of the health science knowledge base, escalation in the growth and use of modern technologies, and changes in the organization, economics and delivery of health care services are profoundly affecting both the process of health science professional education and the health professional. There is, for example an increasing educational need, noted below, for new curricular designs and learning opportunities for ambulatory-based health professions education for all health science students. There is, in addition, a growing emphasis and interest in the incorporation of a "population-based perspective" into the curriculum which reflects the critical health issues facing the citizens of North Carolina and the health care professionals and support personnel who serve them. Targeted community health issues such as aging, maternal/child/adolescent health, AIDS, health promotion, and disease prevention have a common thread which is the

reaction and interaction of individuals and their families to current health care issues. One implication of this approach for the educator is recognizing the need for interdisciplinary educational designs in addition to the unique needs for more specialized clinical knowledge and skills by specific disciplines.

For the individual practitioner, most professionals recognize that completion of their formal training is only the beginning of a professional lifetime devoted to increasing competence, improving capacity to use more complex knowledge, and becoming more sensitive to the problems in the delivery of services. Given the diversity of health care settings, specialization of practice, and individual differences, special efforts are needed to provide a varied array of educational opportunities to meet the diverse learning needs of practicing health professionals.

Related issues affecting the educational process include:

- The need for ready information to both learner and teacher in settings away from the AHEC site, resulting in the local availability of library and other information services in an effective, organized, decentralized manner.

- The importance of individualized learning (and flexible program models) to supplement traditional group continuing education methods.
- The assessment of whether new educational technologies, such as computer assisted instruction, computer based evaluation and knowledge/competence assessment, computer based learning resources, CD-ROM technology, interactive video, and related applications, are in fact cost effective, acceptable to learners, efficient, and an educationally appropriate means to convey information, assist learning, or teach skills.

The present confluence of health manpower concerns and new educational opportunities occurs at a time when there is an increased recognition and appreciation of the services provided by the N. C. AHEC Program in the state. Clearly, efforts to improve the quality, variety, and quantity of educational resources for individual health practitioners, support personnel, and employing health organizations are essential to ensure the highest possible quality of health care delivery for the citizens of North Carolina. Yet these efforts must often be assessed within the context of finite, limited, and often committed resources.

Programming for these concerns will require careful assessment and perhaps re-evaluation of traditional health

care educational technologies and approaches. Many interventions will require carefully developed interdisciplinary designs. Others will require improved approaches to educational administration and assurance of program quality. Whatever the case, the 1990-1995 time frame clearly will be one of both challenge and opportunity for the N. C. AHEC Program.

Goals of the N. C. AHEC Program: 1990-1995

Given the context of environmental influences on health manpower and health education outlined above, the N. C. AHEC Program will have several broad goals in carrying out its mission during the next five years. Each goal reflects critical program priorities and activities.

Education and Training Programming

- ** The program will conduct and/or facilitate a variety of health education and training programs which (a) conform to the Program's Mission Statement, (b) stimulate an improved environment for professional practice with decreased isolation for health professionals and support personnel throughout each AHEC region, (c) reflect the education and training needs of primary care practice sites in underserved areas; and (d) respond to changing health manpower needs. Expanded efforts will be made to move education and training programs to the ambulatory care setting. The program will support community-based education and training programs at the undergraduate, graduate and continuing education levels in nursing, medicine, dentistry, pharmacy, and the constituent professions in public health, allied health and mental health services.

Interdisciplinary Programming

- ** The program will design, on a regional and statewide basis, interdisciplinary educational activities to address special health education issues such as ambulatory-based health education, aging, AIDS, maternal/child/adolescent health, health promotion and disease prevention, and management education for health professionals.

Minority Representation

- ** The program will encourage and expand the development of activities which serve to increase the representation of minority populations in health care careers.

Information Services

- ** The program will provide information and biomedical communications services through the AHEC Library and Information Services Network which (a) are integrated into the total educational effort of each AHEC, (b) serve as regional informational resources for all types of health manpower and; (c) participate in national and statewide networks for dissemination of health information.

Network Development

- ** The program will continue the development and evolution of an organizational structure and a style of administration which builds upon collaborative institutional partnerships, utilizes its resources most efficiently, and provides for regular input by AHEC-based faculty, coordinators and staff in decisions influencing their programs and their careers.

Education and Training Programs: 1990-1995

In accordance with its general mission, one specific goal of the N. C. AHEC Program is to conduct and facilitate a broad spectrum of health education and training activities at undergraduate, graduate, and continuing education levels in allied health, dentistry, mental health, medicine, nursing, pharmacy and public health in each of the nine AHEC regions. The Program has also identified ambulatory-based health education, aging, AIDS, maternal/child/adolescent health, health promotion and disease prevention, and management education for health professionals as special topics to address with an interdisciplinary educational approach. These educational efforts, which take place in communities throughout the state, stimulate an improved environment for health care, decrease professional isolation, and allow practicing professionals and support personnel to meet their own educational needs on a local and regional level.

In order to achieve this educational goal, each AHEC has full-time and part-time faculty in a variety of health disciplines. These individuals are the AHEC-based representatives and/or liaisons to the affiliated health science schools and are responsible for maintaining the

academic quality of the educational and training activities of AHEC sponsored programs.

Consistent with the public mandate of the N. C. AHEC Program, each member of the AHEC faculty and staff devotes attention to both (a) the education and training activities of health science students and/or medical residents on rotation in the AHEC regions and (b) the education and training needs of practicing health professionals, support personnel, and health care institutions and agencies in each of the counties served by the AHECs.

The emphasis for any one faculty member in these two levels of responsibility varies because the formal educational programs of each health science school place different demands on the AHEC-based educator. Faculty and staff in medicine and pharmacy, for example, are more intimately involved in the educational activities of students on rotation to the AHECs than are faculty in the disciplines of nursing, dentistry, public health and allied health. Similarly, the approach used in designing educational activities to respond to the needs of the community varies among AHEC faculty because of the different characteristics of each health profession. Thus, institutional settings and their needs may receive more emphasis in designing educational activities in nursing and allied health than in dentistry and pharmacy.

Several principles underlie the education and training programs to be conducted by the N. C. AHEC Program during the period 1990-1995. These principles guide both disciplinary and interdisciplinary programs.

- Each AHEC will continue to participate in the education and training of medical students, primary care residents and other health science students (allied health, dentistry, nursing, pharmacy and public health) insofar as this serves regional and statewide needs. Each AHEC will also participate in the continuing education of professionals and support personnel of all types.
- The participation of each AHEC in education and training programs will be of two types. First, each AHEC will directly conduct or sponsor certain programs. Second, each AHEC will co-sponsor activities under the direct sponsorship of another service agency or educational institution.
- The Programs of each AHEC will compliment and support efforts designed to recruit younger students and older adults into new health careers.
- The programs of each AHEC will continue to focus on both the special needs of individual health professionals and support personnel, the changing health care delivery system which emphasizes the

ambulatory care setting, and on the interdisciplinary health issues identified at the regional and state levels.

- Since AHECs do not grant academic degrees, their programs will continue to give academic credit through association with various academic institutions, including universities, colleges, community colleges and technical institutes. AHECs are committed to maintaining the highest possible educational standards so that participants can receive appropriate professional recognition. Recognition for participants attending continuing education programs will be derived through the AHECs' association with, and in accordance with guidelines established by, academic institutions, professional societies, and/or other appropriate educational organizations.

The North Carolina AHEC Program will provide educational activities and services that are of the highest quality, that are accessible to the maximum number of health professionals and support personnel, and that are delivered in the most efficient and cost effective manner possible. To accomplish this goal the N. C. AHEC Program will systematically and continually assess the rapid development of new educational technology for the delivery of

educational programming. Although much educational technology is in a relatively early stage of development and sophistication, the N. C. AHEC Program is committed to enhancing its capabilities to provide educational programs and information services to the maximum number of health professionals and institutions in the state.

The AHECs will work individually and collectively to share information and resources on such technologies as audio and visual teleconferencing, interactive video training and self-instructional materials, including those related to computer technology.

Education and Training Programs: 1990-1995

Disciplinary Focus

The descriptions of the disciplinary-focused education and training programs included as part of the 1990-95 AHEC Plan are arranged according to the major health manpower disciplines represented among the four university health science centers associated with the Program. They are allied health, dentistry, medicine, mental health, nursing, pharmacy and public health.

The 1990-1995 Statewide Plan is based upon the foregoing principles for the education and training activities for each health manpower discipline represented in the Program. For each discipline the following objectives also apply on a statewide basis.

- To conduct education and training activities in rural counties including, where appropriate, the rotation of students and residents for some academically acceptable portion of their training to rural primary care centers, public health departments, nursing homes, and other community service agencies.
- To carry out activities which increase the likelihood that students and residents enrolled in

AHEC-sponsored programs will remain in underserved areas in North Carolina.

- To improve the understanding of students, residents, practitioners and support personnel with respect to such health issues as ambulatory-based health education, aging, AIDS, maternal/child/adolescent health, health promotion and disease prevention, and management education for health professionals.
- To encourage each health science school affiliated with the program to have defined activities to stimulate the professional and academic growth of AHEC-based faculty including the development of research activities and other scholarly pursuits.
- To have faculty conduct subjective and/or objective evaluations of the various undergraduate, graduate and continuing education and in-service programs conducted by the Program.
- To fulfill a set of quantitative projections, by year, for each year of the 1990-1995 Plan. These projections are developed by each AHEC and its affiliated health science schools. They represent students on rotation to the AHECs, primary care residents in training at the AHECs and continuing education programs in each AHEC region.

Education and Training Programs: 1990-1995

Disciplinary Focus

Allied Health

The allied health professions include a wide variety of diagnostic and therapeutic disciplines, many of which are highly technical and skilled. These include dietetics, medical laboratory science, medical record administration, occupational therapy, physical therapy, radiologic technology, respiratory care, medical social work, rehabilitation counselling and speech/language pathology and audiology. With few exceptions, there are shortages in the available manpower in these disciplines and there are declines in the number of applicants to many training programs. Further, all projections suggest a worsening of the allied health manpower situation during the coming years as demands for most allied health services increase. In North Carolina, shortages in the allied health professions have been increasing since the N. C. AHEC Program first conducted allied health manpower surveys of four disciplines in 1981. Surveys of seven allied health disciplines, conducted in 1986, suggested significant vacancy rates throughout the state. Although no surveys have been conducted since 1986, there has been considerable evidence that the situation has worsened. Most training programs in

the state report that applicants are fewer and less qualified, and many have begun active recruitment campaigns aimed at three populations: (1) high school and middle/junior high school students; (2) adults interested in changing careers; and (3) health professionals who have dropped out of the work force. In the case of physical therapy, there is no shortage of qualified applicants, but the number of graduates annually is not adequate to fill the growing demand for therapists and therapy assistants. New programs are being proposed or developed in the UNC and Community College system and may be in operation during the 1990-1995 period.

The situation in North Carolina has not been unique. National attention in allied health reached a focus through a study and report by the National Institute of Medicine. Published in 1988, "Allied Health Services: Avoiding Crisis," examined data in ten allied health occupations and predicted serious imbalances in supply and demand in the 1990's unless measures were taken.

During the late 1980s the N. C. AHEC Program cooperated with other organizations in the state to focus constructive attention on the growing manpower crisis in allied health services. With leadership from AHEC, an informal statewide steering committee was organized to examine the issues. Under the direction of this group, a major statewide invitational conference ("Allied Health in North Carolina:

North Carolina: Avoiding Crisis") was held for employers, practitioners and educators in 1989 to generate strategy proposals appropriate to North Carolina. These initiatives will be continued in the 1990-1995 period.

These strategies may include, but are not restricted to the following: facilitation of local, regional and state discussion of manpower issues; off-campus degree programs or specialty certification programs in cooperation with university training programs; collaboration with minority recruitment efforts; information opportunities for vocational occupations teachers and counselors in the high schools; expanded clinical sites for training programs so as to improve in-state recruitment; tracking of data on allied health manpower; and local initiatives undertaken by the individual AHECs. The complexity of the allied health field, with its numerous professions and levels of training, precludes a single statewide approach to allied health education.

Allied Health Education and Training Programs

The allied health education and training programs which will be conducted as part of the 1990-1995 AHEC Plan have been designed to respond to the allied health needs of the various regions. The overall objective of allied health education and training programs will be to facilitate the appropriate distribution and retention of well-qualified

allied health personnel in North Carolina, and to continue to provide a bridge between the AHEC-affiliated schools of allied health and the local community. These programs are:

1. Undergraduate and Graduate Education Programs

Undergraduate and graduate rotations for allied health students to AHEC settings originate from a variety of allied health programs that use the AHEC network as a classroom for students. These schools are in community colleges, technical institutes, at various colleges and universities and at the academic health science centers.

Since the number of schools and types of allied health students receiving some training in AHEC settings is very extensive, the reader is referred to the nine AHEC plans for more details. The allied health education and training programs at Western Carolina University, East Carolina University and Duke University Medical Center will continue to be affiliated with the N. C. AHEC Program. The Department of Medical Allied Health Professions at the UNC-CH School of Medicine is also affiliated and will continue to have regular rotations to AHEC settings for students in physical therapy, occupational therapy, medical technology, speech and hearing, rehabilitation counseling and radiologic sciences. These rotations vary from

four to twelve weeks for all students. In addition, the allied health programs of many community colleges and technical institutes and of various community hospitals will continue to use AHEC settings for student rotations.

To ensure the continued supply of well trained allied health personnel, AHECs will continue to provide opportunities for students in allied health professions at university and community college programs with high quality clinical experiences in community settings.

In addition, during the 1990-1995 period, AHECs will continue to assess the demand and to document the need for additional opportunities for undergraduate and graduate education programs for practicing allied health professionals.

2. Continuing Education

The AHECs will provide high quality, affordable, and geographically accessible continuing education programs and experiences to practicing allied health professionals of all disciplines in cooperation with the AHEC-affiliated health science schools, other cooperating educational institutions and regional/state professional associations. This continuing

education programming will continue to be designed for development of new skills and knowledge and for clarification of practice issues in individual disciplines; there will also be an increased focus on multi- and inter-disciplinary programming on issues in health care practice.

3. Technical Assistance/Consultation

The AHECs will continue to provide assistance to institutions, agencies and professionals in the design of educational programming and the identification of resources.

Allied Health Education and Training Resources

Because of the number of schools training allied health personnel in North Carolina, each AHEC has several academic relationships involving community colleges, technical institutes, colleges, universities and service agencies which sponsor allied health training programs of one type or another.

There is, nevertheless, a primary academic affiliation for each AHEC insofar as faculty teaching resources are concerned. The faculty from each of the following affiliated schools serve as a primary resource to AHEC education and training programs in allied health.

Fayetteville AHEC	Duke University Medical Center
Eastern AHEC	East Carolina University
Mountain AHEC	UNC-Chapel Hill/Western Carolina University
Area L AHEC	UNC-Chapel Hill
Wake AHEC	UNC-Chapel Hill
Greensboro AHEC	UNC-Chapel Hill
Wilmington AHEC	UNC-Chapel Hill
Charlotte AHEC	UNC-Chapel Hill
Northwest AHEC	UNC-Chapel Hill/Bowman Gray School of Medicine

Each AHEC has a member of the staff serving as its allied health education and training coordinator. In addition to these individuals, the AHEC-based faculty in medicine, nursing, dentistry, pharmacy and public health also serve as faculty for allied health programs. Finally, countless allied health practitioners throughout the state who are employed in hospitals and other agencies give many hours of time as teachers of students and continuing education programs in allied health. These individuals also serve on a variety of allied health advisory committees which exist in each of the AHECs, and which guide the development and implementation of allied health programs in each AHEC region.

Education and Training Programs: 1990-1995

Disciplinary Focus

Dentistry

The issue of dental manpower continues to be a very sensitive one among dental professionals. While the supply of dentists is generally considered to be adequate to meet effective demand, if not need, issues of maldistribution still exist. Metropolitan area oversupply, concurrent with recruitment and retention problems in rural areas, persists. Of greater immediate concern are the continuing problems surrounding auxiliary manpower. Some Dental Assisting programs are under enrolled. Other Dental Assisting programs and Dental Hygiene programs report recent successes in recruitment. Both disciplines, however, have problems with insufficient numbers and attrition, turnover, inadequate compensation, and severely restricted opportunities for advancement.

The emergence of HIV infection (AIDS) has become a major health issue in dentistry and has served to refocus attention on hepatitis and other infections, radiation, and toxic materials as hazards of the work place. Economic and social barriers to care, poor dental hygiene, widespread periodontal disease, oral health problems of the aging population and of handicapped, institutionalized, and other

special population groups continue to be issues to be addressed.

The primary thrust in continuing education will be to increase the opportunities and access to continuing education for the dental assistant and dental hygienist. AHECs will continue to provide a comprehensive array of quality educational services for dental practitioners and their auxiliaries.

The North Carolina Dental Society has begun a special focus on the problems surrounding auxiliary manpower issues and has initiated a dialogue with the N. C. AHEC Program in an effort to begin a cooperative series of activities. Likely results will be workshops and consultation services for improving the human resource management skills of dental practitioners. The Program is cooperating in a statewide survey of dentists and dental auxiliaries which will address the manpower needs and factors in the office setting important to recruitment and retention of dental personnel. The survey is supported through resources provided by the N. C. AHEC Program, American Dental Association, the North Carolina Dental Society, the N. C. Dental Assisting Society, and N. C. Dental Hygiene Association, and the UNC-CH School of Dentistry. Results of the survey will guide future programming.

At the request of the North Carolina Dental Society, the State Board of Dental Examiners has evaluated and

approved a plan whereby, upon successful completion of a series of approved courses, a Dental Assistant I can be classified as a Dental Assistant II and become qualified to perform a wider range of clinical functions. It is anticipated that the N. C. AHEC Program will cooperate with the community college system and the UNC-CH School of Dentistry in the development and implementation of the series of approved courses in a manner similar to the current provision of the intraoral radiography course.

The N. C. AHEC Program will continue to work cooperatively to support the educational efforts of the UNC-CH School of Dentistry in completion of the Mastership Curriculum. An evaluation of that experience will guide future efforts to provide a comprehensive continuing dental education curriculum in addition to the variety of short courses offered regionally.

Dental Education and Training Programs

The UNC-CH School of Dentistry has developed a wide range of education and training programs in the AHEC regions. The experiences available for undergraduates and graduates through rotations and externships will continue to accommodate the requirements of the curricula and conform to the dental laws of the state. Within this framework a set of rotations and externships has been designed which provides students with clinical and didactic experience in

serving a variety of underserved populations. Students also learn about different types of health care delivery systems in the various AHEC regions.

The purpose of these experiences is to broaden the students' perspective on the practice of dentistry and on the alternatives available within the profession so that when they enter practice, they may be responsive to the needs of the underserved populations and will consider practicing in an underserved geographical area or institutional setting. The dental education and training programs that will be conducted as a part of the 1990-1995 AHEC Plan include:

- 1. Undergraduate Dental Education**

A minimum of six weeks of extramural programs are required for all dental students. This includes three weeks of community dentistry and three weeks of hospital dentistry. The externship program, which occurs in the summer between the third and fourth years, is divided into two four-week sessions. Therefore, it is possible for students to complete their extramural requirements during this time. Students who do not select this option are assigned to the regular semester AHEC three-week rotations during the fall of their senior year. The programs provide in-depth

didactic and clinical experiences under the supervision of on-site faculty in various health care settings. The sites include health departments, community hospitals, correctional institutions, Veterans Administration Medical Centers, and institutions for the mentally ill and developmentally disabled.

The main goal of the hospital rotation is the development of the students' diagnostic and clinical skills in health care delivery to medically compromised and elderly patients. Since there are a limited number of hospital dentistry rotations, more of these sites have to be established to accommodate the students for their requirements in this discipline. The main goal of the community dentistry rotation is the development of the students' clinical and diagnostic skills in the treatment of underserved populations. The extramural programs also expose the students to a spectrum of opportunities which will help them make decisions in regard to practice locations, advanced education in general practice residencies, or specialty training. It also provides them the opportunity to deliver dental care to a variety of patients not ordinarily seen at the dental school,

thus contributing to the improvement of the oral health of citizens throughout the state.

A summer program of one week clinical rotations at facilities operated by the Indian Health Service in Cherokee, North Carolina is sponsored by the departments of pediatric dentistry and removable prosthodontics. Other special rotations are available during spring semester for seniors who have completed their requirements and wish to pursue individual interests.

2. Graduate and Post-graduate Education

A two-year general practice residency program is based at the UNC Hospitals and includes rotations in anesthesiology, oral surgery, physical diagnosis, ambulatory medicine, and emergency care. Some of these rotations occur at designated AHEC sites. Two one-year hospital based post-graduate general residency programs in dentistry are affiliated with the AHEC system. They are based at the Eastern and Charlotte AHECs.

Graduate students in periodontics are assigned for two week anesthesiology rotations at the Asheville Veterans Administration Medical Center (Mountain AHEC). Oral Surgery residents rotate

through the Fayetteville Veterans Administration Medical Center (Fayetteville AHEC).

3. Dental Hygiene/Dental Auxiliary Teacher Education (DATE)

All dental hygiene students have special experiences in laboratory, hospital and public health sites in AHEC settings. They study dental public health, hospital dentistry, oral biology, pedodontics, periodontics and geriatric dentistry during their rotations. There are also rotations which give students the opportunity to work in V.A. Hospitals, mental health facilities and county health departments. One-semester internships for DATE students based at the UNC-CH School of Dentistry are located in the Mountain, Northwest, Charlotte, Greensboro, Fayetteville and Eastern AHECs. In addition, an off-campus DATE Program has been conducted in the Greensboro AHEC in cooperation with the Guilford Technical Community College.

4. Continuing Dental Education/Technical Assistance

While there may not be a need for increasing the number of continuing education programs for dentists, there is always a need to assure that

appropriate programs of the highest quality are available to practitioners throughout the state on a regional basis. There is also a particular need to increase the opportunities and access to continuing education for the dental assistant and dental hygienist. In addition, there is a need to assess the demand and opportunities for innovative undergraduate and graduate degree programs for practicing dental auxiliaries, as well as the dental auxiliary faculty of community colleges and technical institutes.

The N. C. AHEC Program will respond to the continuing education needs of practitioners and auxiliaries throughout the state as they are expressed through the N. C. Dental Society, the N. C. Board of Dental Examiners, local dental and auxiliary societies and the AHEC dental advisory committees. Specifically, a formal educational needs assessment of dental professions in the state will be completed within the 1990-1995 period to assure that the desired quality and quantity of AHEC continuing dental education programs exist.

AHECs will continue to offer basic training programs to facilitate an adequate supply of properly skilled dental auxiliaries. Courses such as "Intraoral Radiography for Office Trained

Assistants" and "Monitoring Conscious Sedation," which have been designed to enable auxiliaries to meet legal requirements for performing job functions, will be held as needed.

AHECs will continue to provide a comprehensive array of educational services for dental practitioners and their auxiliaries. This shall include formal sponsorship and cosponsorship of educational programs designed to meet both professional and community needs and access to the information resources of the AHEC library network. In addition, consultation and technical assistance concerning available educational resources will be made available to local dental societies and study groups as requested.

Dental Education and Training Resources

As the only dental school in North Carolina, the UNC-CH School of Dentistry is affiliated with each of the nine AHECs for dental education and training programs. Each AHEC has also collaborated with other dental educational programs which are conducted throughout the state. During the period 1990-1995, every effort shall be made to work with the UNC-CH School of Dentistry, the Department of Dentistry of the Bowman Gray School of Medicine of Wake Forest University and dental programs conducted throughout the community

college/technical institute system in order to maximize the efficient use of educational resources.

Each AHEC has a person on its staff who serves as coordinator of dental activities for the AHEC. Each of these persons serves part-time and may or may not be a dentist.

Many local dentists and dental auxiliaries also serve as a major resource to the program through membership on the dental advisory committees in each AHEC which have a significant voice in the definition and implementation of AHEC dental programs.

Education and Training Programs: 1990-1995

Disciplinary Focus

Medicine

Substantial progress has been made since 1972 in overcoming the problems of aggregate supply and geographic maldistribution of physicians in North Carolina. During the period 1972 to 1986, North Carolina increased its total supply of physicians and primary care physicians, in both urban and rural counties, at a rate considerably greater than the rest of the United States. Although these long range trends are positive, more recent indicators suggest that some of the most rural counties of North Carolina are experiencing a decline in the number of primary care physicians.

The AHEC Program is working closely with the four schools of medicine to examine the recent deterioration in the geographic distribution of primary care physicians, especially family physicians. One conclusion reached from these discussions is that the education of medical students and residents needs to be moved more into the ambulatory care setting, particularly in rural areas.

The development of more ambulatory care settings as teaching sites will be a major challenge that will test the creativity and support of faculty, community physicians, and

community service agencies. Well-supervised rotations will have to be developed in selected private group practices, faculty-run group practices, rural health centers, county health departments, hospital out-patient departments, and other sites.

This initiative, as part of the 1990-1995 AHEC Plan, will usher in Phase II of the AHEC Program. In Phase I, medical education was decentralized -- but largely to the AHEC hospitals and to selected physicians' offices. In Phase II the entire educational process will move even more into the community practice setting.

Medical Education and Training Programs

The objectives of the medical education programs for the AHEC Program for 1990-1995 are:

- to introduce the medical student to the community and to demonstrate the attractive qualities which exist in the communities of North Carolina for the practice of excellent medicine, in addition to making available educational programs to ensure the maintenance of skills and the acquisition of new knowledge as it evolves;
- to maintain and advance the cognitive knowledge and skills of the physicians now practicing in North Carolina;

- to enhance the practice environment in order to retain physicians now in practice and to attract the appropriate physicians to identified underserved areas; and
- to collaborate with the Office of Health Resources Development in the recruitment of residents to community practice sites and to support those once settled.

1. Undergraduate Medical Education

Students enrolled in the four medical schools in North Carolina will continue to rotate through the N. C. AHEC regions for their community medical experiences as they have in previous years. There is no anticipated change in the approximate percentages of the curricula devoted to off-campus training. Thus, about 10% of the clinical education of Bowman Gray, Duke and ECU students will be in AHEC-based programs. Similarly, a third of the clinical training of all UNC-CH students will occur in off-campus AHEC settings. All UNC-CH medical students will have an opportunity in their first year to spend a day at a rural group practice site. Medical students in their second year at UNC-CH will continue to receive part of their experience in physical diagnosis at AHEC sites.

Third-year students will continue to have clinical clerkships in internal medicine, pediatrics, obstetrics and gynecology, surgery and psychiatry at AHEC sites, while fourth-year students will continue to have an obligatory "acting internship" off-campus in internal medicine or pediatrics and an obligatory "preceptorship" in family medicine.

If at some subsequent date the enrollment of medical students is changed, it is planned that the same percentage of total clinical training of students would continue to take place through the N. C. AHEC Program.

2. Graduate Medical Education

At present, the number of residency opportunities and the fields in which they are offered would appear to be in reasonable consonance with the number of students finishing their medical education in the state. No change in the programs offered in the previous five-year plan is contemplated at this time.

The following family practice training programs are supported by AHEC: Bowman Gray School of Medicine, Duke University Medical Center, ECU School of Medicine, UNC-CH School of Medicine, Mountain AHEC, Fayetteville AHEC, Greensboro AHEC

and Charlotte AHEC. The internal medicine programs at all of the medical schools in the state receive some AHEC support as do the programs at the following AHECs: Wilmington, Greensboro and Charlotte. Pediatrics, like internal medicine, has been able to expand with AHEC support in each of the four medical schools, and there is a pediatric residency program in the Charlotte AHEC.

Obstetrical programs in the four medical schools have expanded with AHEC support and community-based residencies are available at the Charlotte and Wilmington AHECs. In addition, AHEC support is provided for internal medicine (Wake AHEC), obstetrics/gynecology (Wake AHEC) and pediatric training (Wake and Greensboro AHECs) for residents rotating from programs at UNC Hospitals.

3. Continuing Medical Education

During the period 1990-1995, continuing education will be one of the more important aspects of the N. C. AHEC program in medicine. The challenge of maintaining the intellectual and educational character of the community environment that helped attract physicians to North Carolina will be a critical factor in their retention. It will also be essential to help keep physicians up

to date with the latest medical knowledge so that they can best serve the citizens of North Carolina. The introduction of newer methods for patient care along with advances in biotechnology will make medical practice increasingly more complex. The N. C. AHEC Program provides an ideal network for the rapid dissemination of new information to the practitioner.

During the 1990-1995 period, medical faculty from the medical schools and the AHECs will continue to conduct specialty consultation clinics in various medical specialties in small towns that lack such services. These clinics are excellent forms of continuing education for the private practitioners who refer their patients to the clinics. The clinics also offer realistic education for medical students and residents who accompany faculty to the small towns.

Medical Education and Training Resources

The four university medical centers and their health science schools provide a major resource for the N. C. AHEC Program. The fact that the N. C. AHEC Program is an interlocking network also means that any component may in a particular instance be a major resource to other components.

The schools of medicine have an affiliation agreement with one or more AHECs so that their responsibilities and support are clearly spelled out. These affiliations are as follows:

Northwest AHEC	Bowman Gray School of Medicine of Wake Forest University
Fayetteville AHEC	Duke University Medical Center
Eastern AHEC	East Carolina University School of Medicine
Area L AHEC	UNC-CH School of Medicine
Charlotte AHEC	UNC-CH School of Medicine
Greensboro AHEC	UNC-CH School of Medicine
Mountain AHEC	UNC-CH School of Medicine
Wake AHEC	UNC-CH School of Medicine
Wilmington AHEC	UNC-CH School of Medicine

It is within this framework that the faculty in the medical schools and in the AHECs are a primary resource for education and the development of new skills for physicians throughout the state. Each AHEC has full time and/or part time faculty based at the AHEC. As of January, 1990, there were about 117 full-time medical faculty. Faculty in each AHEC have their academic appointments in the medical school affiliated with the AHEC.

In addition to the full and part time faculty, a significant number of private practicing physicians contribute time and effort to the teaching of medical

students and residents throughout the N. C. AHEC Program. It is estimated that about 30% of all private physicians in North Carolina will provide such services during the period 1990-1995.

Finally, faculty based at the medical schools themselves spend a considerable amount of time visiting AHEC settings and conducting conferences, lectures, etc. for medical students, residents and practicing physicians.

Education and Training Programs: 1990-1995

Disciplinary Focus

Mental Health

The mental health professions include psychiatry, psychology, social work, substance abuse counseling and psychiatric nursing. Also, other professions are found in settings that serve persons with problems of mental illness, developmental disabilities and substance abuse. These can include primary care nurses, occupational therapists, physical therapists, teachers, administrators, general physicians and support/aide personnel. Professionals within these categories are employed by agencies administered by the N. C. Division of Mental Health, Developmental Disabilities and Substance Abuse Services. The Division administers public services through state psychiatric hospitals, centers for persons with mental retardation, alcohol and drug rehabilitation centers, a long-term-care facility and forty-one Area Programs which deliver local services. The state's public mental health system has grown and adapted in response to changes in attitudes and values, advances in pharmacology and treatments, socioeconomic conditions, and new diseases.

The community services administered by the Area Programs are increasingly the focal point for care in a

developing continuum of services. However, the system faces chronic manpower shortages associated with the increased demand for community services, high turnover and unfilled vacancies for virtually every occupational area. Area Programs continue to experience shortages of psychiatrists willing to work on a full-time basis. Even more critical are shortages of specialists, in particular child psychiatrists.

Now the state is in the process of implementing the Pioneer System to guide funding from the state to Area Programs. The structure of the Pioneer System is designed to encourage standard levels of care, increased program development for specific disabilities, and funding based on the provision of eligible services. This system may entail the reallocation of resources at the Area Program level. The Pioneer system, with its emphasis on serving the acutely and severely and persistently mentally ill, is highlighting the need for case managers, residential care workers, and outreach social workers. A significant percentage of mental health clients in the public system are from minority groups, yet the majority of mental health clinicians, except for direct care providers, are non-minorities.

As the Pioneer System goes into effect, and as other demands emerge during the next five years, the AHEC Program will have to maintain its flexibility and responsiveness, qualities that have made it a successful partner to the

system during the first five years of the AHEC Mental Health Initiative.

Mental Health Education and Training Programs

Since 1985, the N. C. AHEC Program has received special state funding to bring its educational services, training programs, and information services to the community mental health facilities in the state, with the goals of increasing the linkages between academic and practice settings, of improving the professional practice environment for mental health professionals, of enhancing the manpower development of the public mental health system and thereby increasing the access to appropriate care for citizens in all communities.

1. Graduate Education

AHEC supports the rotation of psychiatry residents, and in the case of one school, doctoral psychology interns, from the four medical schools to community mental health facilities in North Carolina. The goal of these training experiences is to expose the physicians in training to the challenges and opportunities of community psychiatry in North Carolina and to interest them in selecting such a practice setting after completing their residency training at the university. Supervision for the rotations is

provided on-site by the psychiatric staff of the centers, in cooperation with on-campus supervisors.

During 1990-1995, AHEC will work with the departments of psychiatry to expand the rotations to new sites in the AHEC regions, and will seek the expansion of those rotations to represent a more significant commitment of resident time in off-campus community settings.

AHEC also supports the rotation of graduate social work students from the East Carolina University School of Social Work to mental health facilities in the Eastern AHEC region. The Program will seek to expand opportunities for social work students from UNC-CH and other programs to receive some portion of their training in mental health settings.

2. Continuing Education

Continuing education will continue to be a major focus for the mental health activities of the AHECs and their affiliates at the universities. This continuing education will include programs targeted at specific disciplines as well as multi-disciplinary programming focused on treatment, management and assessment issues.

The AHECs will continue to work at three basic levels in terms of continuing education programming. The primary focus will be the needs of the Area

Programs for Mental Health, Developmental Disabilities and Substance Abuse Services. The AHECs will design and offer educational activities based on periodic needs assessments of their local agencies. Secondly, the AHECs will also seek to coordinate their programming with the four Regional Offices of the Division of MH/DD/SAS, working with their training committees and regional specialists to develop regional programs. Because most of the regions encompass more than one AHEC, and some AHECs fall into more than one of the four regions, the AHECs will work cooperatively with each other to reduce duplication of effort and enhance coordination across the state. Finally, the Division of MH/DD/SAS periodically identifies issues which warrant statewide continuing education programs, and the AHECs will cooperate when appropriate to assist the Division to offer this training.

The AHEC Mental Health coordinators will also organize educational activities to meet the needs of practitioners who seek higher levels of certification, such as certification preparation for substance abuse counselors.

3. Technical Assistance and Consultation

The AHEC Mental Health coordinators will extend technical assistance and consultation to the Area

Programs and other public mental health facilities in their areas in order to meet individual agency needs. This assistance may be provided by the coordinators themselves or by others under AHEC auspices, such as on-site case consultation by faculty of a department of psychiatry, assistance with manpower distribution tracking and analysis, or other individualized technical assistance. The AHEC librarians whose focus includes mental health outreach services will assist agencies to organize their collections and to access information services through the AHECs and computer databases.

Mental Health Education and Training Resources

The AHECs have relationships with the Departments of Psychiatry at the four schools of medicine. These academic affiliations are as follows:

Eastern AHEC	East Carolina University Department of Psychiatric Medicine; School of Social Work
Fayetteville AHEC	Duke University Department of Psychiatry
Northwest AHEC	Bowman Gray School of Medicine Department of Psychiatry
Area L AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry
Greensboro AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry

Mountain AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry
Charlotte AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry
Wake AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry
Wilmington AHEC	The University of North Carolina at Chapel Hill Department of Psychiatry

The faculty from each of these departments serve as a primary resource for AHEC education and training programs in mental health.

In addition, the N. C. AHEC Program maintains an agreement with the UNC-CH School of Social Work for programming in the areas of mental health and aspects of geriatric mental health.

Each AHEC has one or two staff members serving as mental health education coordinator(s). These individuals are themselves mental health professionals or educators with mental health preparation, and many serve as faculty for AHEC programs. The AHEC libraries have additional personnel to provide information and outreach services to mental health facilities and personnel. These services support and enhance the continuing education services of the AHECs.

In addition to the contributions of university faculty, the AHEC mental health coordinators and the AHEC librarians, many mental health professionals from AHEC communities serve on AHEC advisory and program planning committees to guide the development and implementation of mental health educational programs.

6

Education and Training Programs: 1990-1995

Disciplinary Focus

Nursing

During the past decade nurses have been asked to undertake an increasingly complex and demanding set of roles in the delivery of health care. Advances in nursing science and health care technologies, as well as changes in patient populations and the health care delivery system, have placed added responsibility on nursing practice and demand more knowledgeable and caring nurses.

The shortages of nursing personnel reported in 1988 and 1989 were more serious and persistent than those previously encountered. For example, although the supply of registered nurses continues to grow in North Carolina, that supply has not kept pace with the demand. In the acute care setting the delivery of care for the more critically ill patient demands a lower nurse to patient ratio and requires nurses to act in expanded roles such as advanced nursing practitioners, clinical specialists in critical care, discharge planners and managers. Similarly, with the increasing complexity of problems faced by patients outside the hospital setting, there is an increasing demand for nurses with specialized health promoting, acute and rehabilitative skills in out-patient services, such as home

health agencies, hospice, rehabilitation units, outpatient clinics, health maintenance organizations and long-term care centers.

The 1989 session of the North Carolina General Assembly appropriated funds for nursing scholarships and other new initiatives designed to enhance recruitment into nursing, facilitate educational and career mobility, encourage the efficient and appropriate utilization of all health services personnel, and improve the professional practice environment in order to retain nurses in the profession. The North Carolina AHEC Program was identified in many parts of the legislation and asked to expand or develop a broad range of nursing initiatives which will be implemented and evaluated for continued programming during the 1990-1995 period.

Throughout the 1980s, the AHEC nursing faculty have recognized that solutions to educational and manpower issues in nursing are complex and require a combination of continuing efforts and innovative, coordinated, and comprehensive responses, which utilize a variety of new educational strategies, programs, and services. The North Carolina AHECs will continue to be institutions well suited to collaborate with health care agencies, educational institutions and the nursing profession to assess needs and to respond to nursing issues throughout the 1990-1995 period. Specific objectives for the N. C. AHEC nursing faculty for the period 1990-1995 include:

- to continue to work to help implement the recommendations of the Legislative Commission on Nursing;
- to support preceptor development in the creation of new clinical training sites for students in nursing programs;
- to support efforts designed to interest and recruit school age and non-traditional students into nursing;
- to provide educational opportunities to assist nurses in administrative positions to further improve the work environment and develop management/leadership skills;
- to continue to promote innovative off-campus baccalaureate opportunities for registered nurses;
- to assess the need and encourage opportunities for off-campus graduate nursing education for nurses in specialized settings, in advanced nursing practice and for faculty in community college/technical institute programs;
- to provide continuing education, technical assistance, and consultation to nurses at all levels to develop health promotion expertise and clinical skills, both acute and rehabilitative, necessary for practice in community, inpatient and ambulatory settings; and
- to assess and expand the educational opportunities in ambulatory health care training in such areas as school nursing, hospice, home health, and long term care.

Nursing Education and Training Programs

1. Undergraduate and Graduate Nursing Education

Education of registered nurses takes place in a variety of health care institutions, agencies, and educational settings throughout the AHEC regions. AHEC-based nursing faculty are assisting in the development of new clinical training sites and, in some instances, may coordinate the clinical assignments for nursing students, when one or more nursing programs are trying to make maximum use of the limited number of clinical facilities. AHECs will also be involved in the development of preceptor training to support nursing education experiences.

Graduate nursing students continue to receive clinical and community health experiences in the AHECs. Several AHEC nurses facilitate arrangements of high quality educational experiences and coordinate these experiences with those of other nursing students in their area. AHEC nursing and medical faculty may serve as teachers of these nursing students.

2. Health Manpower Development

AHECs continue to cooperate with the many educational and service institutions that have developed a variety of strategies to interest and recruit the school age population into health careers in general, and nursing in particular. AHECs have designed and distributed brochures describing nursing careers and the regional resources for education. The AHEC nursing faculty have also provided orientation training for the members of regional nursing speaker's bureaus, school counselors, school nurses, and health occupation teachers to familiarize them with current information and educational requirements for various health careers. Recruitment materials (both print and audio-visual) are available in AHEC libraries. The AHECs are coordinating the clinical component of a statewide registered nurse refresher course which includes self-directed independent study modules. It is hoped that the self-study approach will increase the availability and accessibility of required training which will bring inactive nurses back into practice.

3. Retention/Work Environment.

The AHEC Program views education and training initiatives which improve the work-place climate for practicing nurses as essential for both retention and career recruiting. Attracting college, school age, and non-traditional students into nursing will require improved and more flexible avenues for career progression. Regional goals identified for schools and agencies include a coordinated sequence of educational programs and a positive and rewarding work climate for the professional practice of nursing which acknowledges competence at several levels of clinical expertise. Statewide and regional workshops and technical assistance/consultation will provide information about improving the practice environment and expert advice on methods of implementing a variety of practice models and practice site strategies such as flexible staffing.

4. Maintaining and Improving Nursing Excellence

To assist in the retention and distribution of nurses across a variety of work settings, the AHEC Program will provide educational opportunities which allow practicing nurses to maintain clinical competence and acquire new knowledge and skills.

The content areas of continuing education workshops will continue to include clinical practice excellence, advanced certification, and management and professional leadership training. Statewide programming should continuously challenge nursing professionals to consider alternate practice and organizational models that improve the work setting environment and enhance the delivery of nursing care. These professional practice models will assist in nurse retention and promote positive health outcomes for patients.

The N. C. AHEC Program has also sponsored a pilot Institute for Nursing Excellence acknowledging and rewarding staff nurses whose clinical practice is marked by exemplary distinction. The two one-week pilot conferences provided professional enrichment for the staff nurse and encouraged the participants to assume a leadership role within the practice setting. Evaluation of the experience will guide future programming.

5. Educational Mobility/Career Advancement

There is a continuing interest in improving the availability of academic programs for qualified registered nurses leading to a baccalaureate degree

in nursing. The AHEC Program will continue to work with its affiliated nursing schools to implement a plan to provide needed off-campus instruction for practicing registered nurses in underserved regions of the state. Several AHECs are also directly involved with efforts to identify and counsel students to facilitate BSN education for the registered nurse.

The period 1990-1995 will see expansion of these efforts and, at the request of the UNC Board of Governors and in association with the Deans of the UNC Schools of Nursing, the N. C. AHEC Program will also plan for the development of off-campus MSN programs.

Collaboration with schools of nursing on the assessment of needs for off-campus graduate nursing education for nurses in specialized settings and advanced nursing practice will continue. Of particular concern during the 1990-1995 period will be the academic needs and opportunities for professional development of faculty in the community college/technical institute system.

Nursing Education and Training Resources

Since its inception in 1972, a primary focus of AHEC nursing has been to design education and training activities

that provide information about new technology, innovative clinical methods, and models of professional nursing practice. The provision of continuing education, technical assistance, and consultation, in response to regionally identified needs, relies on the strong support of nursing faculty from schools of nursing in the state and on the efforts of the nurse educators in each AHEC.

There are 25 nursing faculty in the AHECs who, with the Director of Statewide Nursing based at the University of North Carolina at Chapel Hill School of Nursing, comprise the AHEC Nurse Council. The majority of the AHEC nurses have a masters degree, and several have earned a doctorate. These nurses coordinate and produce all AHEC nursing education programs and have adjunct faculty appointments at an affiliated school of nursing.

In addition to the full-time AHEC nurses, the faculty of the various affiliated schools of nursing devote time to help meet the education and training needs of the AHECs. Each AHEC also works collaboratively with the other diploma, associate degree, baccalaureate degree nursing education programs in its region. Finally, many nurses from communities throughout each AHEC region give countless hours of time and effort to design and implement AHEC programs. This includes time devoted to serving on the nursing advisory committees of the nine AHECs.

Education and Training Programs: 1990-1995

Disciplinary Focus

Pharmacy

Although the ratio of pharmacists to population in the state is slightly above the national average, recent studies suggest that there are vacancies in hospitals and community pharmacies throughout the state.

The major manpower concern in pharmacy is to continue to enhance the quality of pharmacy practice. The major focus for 1990-1995 will be on programs which will enable the practicing pharmacist to provide comprehensive patient-oriented pharmaceutical services to both the patient and other health professionals. During 1990-1995 the N. C. AHEC Program will support the academic internship program of the UNC-CH School of Pharmacy which provides each student with a full semester of community-based training during the senior year. Clinical training in the AHECs for Doctor of Pharmacy and graduate pharmacy students will also be expanded during this period. Planning for offering extramural Master of Science and Doctor of Pharmacy degree programs also will occur during the next five years. One or both programs may be considered for implementation during this time. Finally, continuing education for practitioners across the state will remain a major activity of the

AHEC-based pharmacy faculty and their colleagues in Chapel Hill with the addition of curricular programming, certificate education, and mini-residency programs.

Pharmacy Education and Training Programs

The pharmacy education and training programs that will be conducted as a part of the 1990-1995 AHEC Plan respond to the previously listed health manpower issues. These programs are:

1. Undergraduate Pharmacy Education

The Academic Internship Program (AIP) is a required 16 week rotation for all senior pharmacy students at the UNC-CH School of Pharmacy. Beginning in the fall semester 1990, the AIP will grow to four calendar months. In this full-semester, pharmacy students gain practical experience in community and hospital pharmacy practice; clinical clerkships in patient care units of community hospitals, nursing homes or ambulatory care settings; and elective rotations in a number of unique pharmacy practice settings. This required experience for all pharmacy students is one of the hallmarks of the 1990-1995 AHEC Plan in pharmacy and will occur in all nine AHECs and in the non-affiliated region. The next five years

will bring an increase in the number and variety of elective options in the AIP.

2. Graduate Pharmacy Education

The 1990-1995 Plan incorporates the Hospital Pharmacy Residency Program associated with the Masters Degree in Pharmacy Practice. Even though the number of students enrolled in this program has dropped, one to four months of rotations per year will be conducted in the AHECs.

3. Professional Pharmacy Education/Extramural Degree Training

The Doctor of Pharmacy (Pharm.D.) degree program was approved by the UNC Board of Governors and implemented in the fall of 1981; the first five students graduated in May, 1983. The program now graduates 12-15 students per year. During the student's second year of the two year program, selected AHECs are used for 35 to 55 months of clinical training. The next five years will begin the planning for implementing the Pharm D. in place of the B.S. degree for all pharmacy graduates. Though these plans will include a small reduction in class size, additional pharmacy faculty in the AHECs may be required for clerkship precepting.

The N. C. AHEC Program offers an organizational and clinical framework for conducting certain portions of regular degree programs of the various health science schools in off-campus settings. The School of Pharmacy is actively investigating a program of AHEC-based educational programs for practicing pharmacists which would permit pursuit of the Pharm.D. degree and M.S. degree on a part-time basis over several years. Should the School of Pharmacy and the university system reach an understanding and funds be provided, the N. C. AHEC Program will be supportive in conducting these off-campus programs.

4. Continuing Pharmacy Education

Mandatory continuing pharmacy education as permitted by current legislation is a reality. Increased involvement by practicing pharmacists has had an impact on the demand for accessible high quality continuing education. The AHECs have been and will continue to be responsive to the educational needs of practicing pharmacists in their regions. In collaboration with the UNC-CH School of Pharmacy the AHECs have doubled their CE offerings and will continue to offer a comprehensive selection of continuing education

programs and information services throughout the state. The next five years also will bring curricular continuing education series, certified programs and development of mini residencies in specialty practice areas.

5. Technical Assistance

AHEC Pharmacy faculty will continue to serve their regions as resource persons in the areas of pharmacy, systems and services, pharmacology, and therapeutics. Several AHECs have supported the development of Drug and Poison Information Centers to assist physicians, pharmacists and other health personnel with questions of immediate concern.

Pharmacy Education and Training Resources

The UNC-CH School of Pharmacy maintains an administrative unit for coordination of all student education activities in pharmacy with each of the AHECs. The School is directly affiliated with all nine AHECs.

Each AHEC has at least one pharmacy faculty member. These faculty are trained in the practice of clinical pharmacy. In addition to serving as regional coordinators for the education and training programs described above, these faculty serve as clinical pharmacy practitioner-educators and teach students and residents in their

respective AHEC's medical residency program(s). This dual role fosters interdisciplinary learning and demonstrates the feasibility of clinical pharmacy services at the community level.

The involvement of the AHEC-based pharmacy faculty with the mission of the School and goals of the N. C. AHEC Program has developed beyond the level originally anticipated, and additional AHEC-based faculty may be needed if expansion is to occur. Presently, some support from the UNC-CH School of Pharmacy is being dedicated to AHECs to develop clinical services and teaching sites in ambulatory and inpatient care, with some funding going to non-AHEC base institutions

Practicing pharmacists throughout North Carolina serve as teachers of pharmacy students on a voluntary basis. These practitioner-instructors play a vital role in the education of pharmacy students and complement the AHEC-based pharmacy faculty. Over 400 community and hospital pharmacists in over 200 practice sites serve in this capacity throughout the state. Many also serve on regional AHEC pharmacy advisory committees. The School has developed a national model program on "Training Pharmacy Preceptors." This program will continue being presented across the state to train new preceptors, and advanced preceptors development programs will also be offered throughout the AHEC regions.

Education and Training Programs: 1990-1995

Disciplinary Focus

Public Health

Public health is a practice setting which ties together groups of health professionals, such as physicians, nutritionists, nurses, and dentists to serve the population-based health needs of all citizens.

In 1988, the Institute of Medicine published its report on the state of public health in the nation. This report entitled "The Future of Public Health" indicated that the system was in disarray. The recommendations of this report were examined and further recommendations were developed at a series of statewide forums in 1989. Because of widespread concern about the public health system in North Carolina, a special legislative study commission on public health was named in 1989 to make recommendations to the 1991 legislative session for improving public health in the state. The work of this study commission will determine the direction of public health in the state and as such deserves close cooperation and monitoring by the AHEC system.

Manpower issues in public health are reaching a critical state. A 1989 manpower study conducted by the Association of Local Health Directors showed that fully qualified nurses and sanitarians were in short supply in

health departments across the state. In addition to the issue of under qualified personnel, there are also indications of recruitment and retention problems once those personnel are brought up to minimum qualification levels.

In keeping with the AHEC goals in the manpower area, the AHEC Public Health coordinators will be working towards the development of an ongoing monitoring system for public health manpower. The first steps toward this are being taken in early 1990 as input to the legislative study commission. An ongoing system will enable AHECs to assist the public health system in addressing continuing personnel issues.

Public Health Education and Training Programs

The overall goal of the N. C. AHEC Program in the area of public health is to encourage, through education and training activities, the adequate distribution, retention and quality of health manpower in public health agencies across the state. The N. C. AHEC Program will continue to be involved in conducting and facilitating education and training programs based upon systematic assessments of regional and local needs and professional manpower trends. Activities will be consistent with the underlying goals of the N. C. AHEC Program and will include involvement with undergraduate and graduate education and training, continuing education and technical assistance, with special

attention devoted to major health issues facing health professionals in North Carolina.

Public health issues affect large and varied segments of our society. They range from the monitoring of private water sources, to the disposal of toxic and hazardous wastes, to AIDS prevention and infant mortality. The difficult public health problems to be addressed, the maldistribution of trained public health professionals, the population served and budget constraints, make the public health agency's job increasingly difficult. This will require that the AHECs focus on several areas during the next five years: first, providing up-to-date information and education on current public health issues of concern including manpower; second, cooperatively working with other organizations to provide continuing education opportunities for public health personnel; and third, supporting the efforts of North Carolina's public health system and the UNC-CH School of Public Health to promote public health practice in North Carolina.

The principal public health educational efforts through AHEC will continue in the areas of community experience for graduate and undergraduate students earning the Masters of Public Health degree and the B.S. in Public Health and continuing education for public health professionals. In addition to the on-campus M.P.H. Program of the UNC-CH School of Public Health, the off-campus M.P.H. will continue

to be offered in collaboration with AHEC sites throughout the state. AHECs will continue to provide regionally accessible and affordable continuing education programs of high quality relating to public health practice for professionals and public health agencies in the AHEC regions. Whenever appropriate the AHECs will work with the UNC-CH School of Public Health in joint planning of education programs, including annual series for sanitarians, public health nurses and others.

Public Health Education and Training Resources

The primary university affiliation for public health programming through the N. C. AHEC Program is the UNC-CH School of Public Health, which is affiliated with each of the nine AHECs. The School maintains an administrative unit responsible for coordinating the activities of all nine departments with the AHECs. Each of the nine AHECs has one or more staff members whose full or part time responsibilities are to coordinate AHEC activities in the public health sector. These coordinators work with university and AHEC faculty/staff in designing educational services for specific disciplines in public health settings.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

There are several issues that have been identified as being critical to health professions development and education for the period 1990-1995. Topics deserving particular and systematic attention include rural and urban ambulatory-based health professions education, aging, AIDS, maternal/child/adolescent health, health promotion/disease prevention, and management education for health professionals.

AHEC has demonstrated that it can be effective in addressing these interdisciplinary issues in several ways:

- developing multidisciplinary community-based experiences and identifying sites for student and resident training;
- developing special education and training for community practitioners which would address local and regional needs;
- serving as a focus for the coordination of existing educational resources, and;
- expanding technical assistance, consultation, information services and educational resources to address the areas.

It is increasingly obvious that these complex issues are often interrelated; however, some of the salient and distinctive features and programming efforts in the individual areas are briefly noted in the following sections.

5.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

Ambulatory-Based Health Professional Education

Throughout the recent history of medicine, the primary clinical teaching sites have been hospitals, either in communities or at the universities. Patients have long been "captive audiences" while the process of the medical workup with its associated diagnostic tests was underway. There was also a time after a surgical procedure or the treatment of an illness where virtually full recuperation, and nursing care, took place before the patient went home. During this hospital stay, students had considerable access to those patients and were physically present as crucial judgments regarding medical management were made.

With the advent of prospective payment and concurrent review, both designed to shorten expensive hospital stays, the hospital-based student tends to see the patient only after decisions are made in the outpatient setting. The situation is complicated by the fact that stays are often so short that meaningful interaction with the patient is either limited or eliminated. The opportunity to see the results of procedures or treatments is obviated by early discharge and follow up in the outpatient setting.

Although the primary impact of this change in service delivery has been on medical education, there are important aspects that also relate to education in nursing, allied health, mental health and to a lesser extent, pharmacy and dentistry. The shift to home care of early discharged patients has resulted in the development of a variety of home-care agencies whose primary services are nursing and allied health. Plans are being supported by AHEC to develop home health agencies as practice sites for nursing students from a variety of community colleges and universities.

Even before the pressures for decreased lengths of stay, educators in the hospital setting stressed the importance of planning for health care before and after hospitalization. This planning involves taking into account community resources, home care needs, patient flow and a variety of aspects related to outpatient systems operations, including resource education, business organization, medical office management and cost containment. In clinical education for ambulatory care, there is a need to address the added challenge of learning an expanded number of disease processes which are seen almost exclusively in the outpatient setting, particularly in their early management stages. The follow-up and home care of post operative and other patients who previously recuperated in the hospital are other areas to be addressed.

In developing potential community sites, educational programs in the health sciences will include rural health centers, urban health centers, private group practices, managed health care settings, HMOs, health departments, home health care agencies, and extended care facilities, including nursing homes.

As mentioned, the obvious increased need for home health care affects the disciplines of nursing and pharmacy and the allied health disciplines of physical therapy, occupational therapy, speech therapy and medical social work. These needs translate into requirements for the development of curricula and systems as part of the educational offerings available to these disciplines. Over the next five years the N. C. AHEC Program will be involved with the required development of totally new curricula, personnel, support systems, information and media services, and use of effective preceptor practice sites for students, regardless of discipline.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

Aging

The population of North Carolina over 65 years of age is expected to increase at a rate of 56% between 1980 and 2000; those over 85 are expected to increase in number by 128% during that period. The implications for the health care, mental health and human services systems are clear and professionals in all those areas must be prepared to meet the needs of older citizens. The character of the illnesses presented by the older citizens will reflect the numerous lifestyle-related health problems in our society. At the same time, the heightened consumer expectations of a better educated population will alter the patient-provider relationship. There is also an increasing number of providers and educators who recognize the need to alter the attitude of a large segment of health care professionals toward the care of the healthy, ill or frail older adult.

The economics of prospective payment, increasing numbers of disabled elderly, staffing shortages in acute and long-term care settings and an unconnected assortment of public and private responses to the educational needs of providers constitute the context for the N. C. AHEC Program's initiatives. Within this context, the ambulatory

needs of the chronically ill elderly who are not yet institutionalized will become the intentional focus of educational efforts by the various AHECs with resources and interests in education of providers serving this population. Disciplinary efforts in geriatric pharmacology, patient assessment, clinical management and rehabilitation will continue. While each discipline will answer educational needs individually in aging, programs targeting access to health care, ethics of death and dying, and home management of the elderly and their families will require an interdisciplinary focus.

The AHEC Program has identified aging as a special issue since the development of its 1985-90 Plan. During that time, the Program received three AHEC Special Initiative Training grants to carry out one-year projects in aging. These included the development and cataloging of audiovisual training materials at the AHEC libraries, the production of videotapes on case management and special training projects developed by the individual AHECs. The AHECs developed and added expertise on their staffs related to geriatrics; family practice residency programs and internal medicine residency programs at many AHECs employ trained geriatricians in their teaching services, and several AHECs also employ education coordinators who specialize in program activities on aging. The Northwest AHEC has made aging a priority and has a director of Aging

Initiatives. The Northwest aging program is linked strongly with the J. Paul Sticht Center on Aging of Bowman Gray School of Medicine of Wake Forest University.

During the 1985-90 period, the AHECs developed and strengthened relationships with other organizations concerned with the care of older persons. For example, since 1987, the AHECs have cosponsored a Core Curriculum for social workers in the local Departments of Social Services who serve the needy elderly. The curriculum was developed by the UNC-CH School of Social Work and the N. C. Department of Social Services and will continue to be provided at AHEC sites during 1990-1995. Also, the AHECs will continue to cosponsor training on geriatric mental health, developed in collaboration with the School of Social Work's Center on Aging Research and Education Services (CARES). The Program on Aging of the UNC-CH School of Medicine, long a partner of the AHEC Program, will be developing various outreach educational programs for physicians and others during the 1990-1995 period, and the AHECs are already a part of the planning for those programs.

Individual AHECs, through their academic affiliations, will continue to deliver educational services related to aging. The Northwest AHEC, for example, works in close partnership with the Appalachian Geriatric Education Center. Other AHECs collaborate in the provision of educational programs and consultation including Geriatric Evaluation

Clinics in association with university medical programs. Monthly Geriatric Evaluation Clinics already exist at the ECU Family Practice Center and the Fayetteville AHEC (in association with the Geriatric Education Center of the Duke University Medical Center).

The AHECs will sponsor continuing education on topics in aging, both multi-disciplinary and discipline-specific, and will work with their affiliated health science schools to provide student experiences at health care agencies serving older adults.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

AIDS

Although AIDS was not identified in the 1990-1995 Plan as a special initiative this serious threat to public health has rapidly emerged as a major programming area for the AHECs. The health care professionals in North Carolina have increasingly turned to their AHECs as resources for information and continuing education on AIDS/HIV. AIDS may be anticipated to become an enormous problem for the people of North Carolina because the disease is still spreading in spite of the availability and broad dissemination of the most current information to health care professionals and the public regarding transmission and prevention. Current educational efforts are reported to be unsatisfactory for meeting the needs of the public and health care practitioners: education concerning psycho-social and ethical issues remain as important as training on the pathophysiology of the disease and its treatment. Requirements for education will no doubt expand dramatically over the next few years, as the knowledge base expands and as the number of cases grows and involves more practitioners, communities, and family members.

Because we have not dealt with a disease like AIDS in our lifetime, because AIDS is a complex multi-system physical, psychological, and sociological disease, and because its ramifications have potential to affect every phase of the social and health care system, it is obvious that new and creative programming efforts will be required of the AHEC Program. Each AHEC plans to provide both traditional continuing education and a number of new strategies for incorporating a variety of educational modalities for involving and imparting information to a greater number of health care professionals. During the period 1990-1995, every effort shall be made to collaboratively coordinate programming with AIDS experts at the four schools of medicine and with the federally designated Emory AIDS Training Network and with the AIDS Control Branch of the N. C. Department of Human Resources.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

Maternal/Child/Adolescent Health

The broad topic of maternal/child/adolescent health includes public health and societal concern over such issues as infant mortality/morbidity, prenatal care, family planning, premature births, child health, abuse and neglect, developmental disabilities, teenage pregnancy, nutritional deficiencies, adolescent substance abuse, teen suicide and AIDS. In addition, of major concern is accessibility and availability of obstetrical care for women in rural areas and the stability of services for women with high risk pregnancies. The number of women at risk who are served through the public sector has increased dramatically in recent years. At the same time, the number of obstetricians and family practitioners providing obstetrical care has declined.

The goal for the next five years in maternal and child health will be to develop exemplary teaching programs and learning experiences for students, residents and practitioners that will focus on comprehensive biopsychosocial prenatal care and early childhood and adolescent development. Some of these activities will be addressed as integral elements of other health concerns

(e.g. AIDS, health promotion/disease prevention, ambulatory based health education). Others will be conducted in close coordination with teaching programs in departments of pediatrics and obstetrics and gynecology. Still other initiatives will be undertaken by individual disciplines with hospitals, professionals and community agencies throughout each AHEC region. These continuing education activities with health care practitioners will focus on a comprehensive perspective of the total prenatal and postnatal experience of women and children.

In addition to these activities the Program is planning two new obstetrics-gynecology residency training programs for the state during the next five years.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

Health Promotion and Disease Prevention

There is a clear recognition in North Carolina among health planners and health service agencies that a significant number of the health problems which are very costly to treat are problems related to poor health practices and harmful occupational/environmental factors. Health promotion/disease prevention activities are perceived, therefore, as a means to achieve both an enhanced quality of life and reduced health care costs. In order to design and carry out these activities, it is necessary that health professionals assume a leadership role in educating the public. This role requires that health professionals keep up to date with proven techniques of public and patient education and behavior modification.

Public health departments, mental health agencies and individual health professionals are key agents in the growing trend toward the reduction of health risks and the improvement of health behaviors. To help bring them up to date in the latest knowledge in this field, the AHECs have cooperated with the UNC Center for Health Promotion and Disease Prevention, the health departments and other agencies in offering continuing education on a wide range of

issues such as cardiovascular disease, cholesterol, teenage pregnancy, dental sealants and osteoporosis. The AHECs have also helped health professionals to monitor and protect their own health through stress management programs, workshops on safety precautions in dealing with the HIV/AIDS virus, and other important issues.

In addition to disciplinary activities for building health promotion and disease prevention emphases into continuing education programs and into the clinical training of students and residents, the N. C. AHEC Program will build on the work of the Wake AHEC in promoting an annual Wellness Conference for health professionals and assisting in the sustaining of children's wellness programs.

Education and Training Programs: 1990-1995

Interdisciplinary and Health Issues Focus

Management Education for Health Professionals

Health care delivery has become increasingly complex in the 1980s in response to economic, societal and technologic changes. There has been a corresponding need for training in supervision, management and the administration of health care services and health agencies in order to achieve the efficient delivery of high-quality services in a cost-effective manner. In addition, the improvement of the work place environment, so critical to job and career satisfaction, is at the heart of efforts to recruit and retain qualified health professionals and support personnel. The AHECs have brought a wide range of management training to their regions in several forms: agency-specific analysis and consultation; educational series for new managers, middle managers and chief executive officers; and series on specific management topics. The UNC-CH School of Public Health also brings management and supervision training programs to professionals in the AHECs and conducts two off-campus graduate degree programs in Health Policy and Administration and Public Health Nursing Administration at AHECs in the western and eastern regions of the state. With the inclusion, since 1985, of mental health agencies and

professionals in AHEC programming, the demand has increased for management education specific to their organizations and services. To help meet growing management needs in pharmacy practice, the UNC-CH School of Pharmacy will be working with selected community and hospital pharmacists in attempting to develop community and hospital pharmacy residency programs. Also the School will explore offering a graduate degree in Hospital Pharmacy through the AHEC system using the teleclassroom technology.

Minority Representation in Health Fields

Efforts to improve the supply, geographic distribution, and specialty distribution of health manpower mandate that the program continue initiatives to increase minority representation in health professions. The N. C. AHEC Program is committed to encourage and expand the development of activities which serve to increase the representation of minority populations in health care careers.

Statistics for the late 1980s show that blacks and native Americans account for less than 10% of North Carolina's health care work force, while they comprise 25% of the state's population. These data are especially troubling in that North Carolina has the sixth largest black population and the highest number of traditionally black or native American colleges in the nation. Of these colleges, only three in the UNC system offer programs in allied health manpower, three offer nursing degrees, and none offer degree programs in medicine, dentistry or pharmacy. Clearly, there is a need to target minority students for recruitment into the health professions and to develop educational approaches to guide them through their training and into the work force, where they can serve as professional role models for the next generation while helping to meet the state's health care needs. This undertaking will require the cooperation

of the state's educational institutions, governmental agencies, the health care industry, public school educators and counselors, health professional societies and organizations such as AHEC.

In undertaking initiatives in this area the Program is asked to address a new area of health manpower development which involves collaboration with both the public at large and the public school system and expanding its audience and its mechanisms to include health manpower development through activities at the pre-career level. Although the details of specific initiatives in health careers recruitment are still in the development phase, preliminary strategies to achieve this program goal include the following:

1. A work group on Minority Representation in Health Careers has been established to share information about efforts underway, to design pilot projects and new programmatic initiatives, and explore the potential for obtaining additional resources. The work group will act as a forum for discussion of statewide opportunities and the regional experiences of the individual AHECs. It will

- Conduct a statewide assessment of current programs and resources in order to identify the current status and activity of educational

institutions (particularly historically black institutions of higher education), employers, minority health professionals and support personnel.

- Examine existing minority activities and support active collaboration or linkage with the on-going efforts of other institutions, programs, or organizations (such as federally funded Health Careers Opportunity Programs, the Pre-College Program of the UNC Mathematics and Science Education Network, the Program for Minority Advancement in Biomolecular Sciences, the North Carolina Health Careers Access Program).
- Assess the potential for effective and appropriate pilot programming efforts (such as summer health careers programs, focused coordination with existing recruitment efforts, development of specific support systems to encourage minority advancement through the educational system into health careers, and pathways of educational mobility for existing minority health professionals and support personnel).
- Assist in the development and coordination of regional minority resources by identifying

minority health professionals and support personnel who might participate in regional advisory committees or speaker's bureaus and serve as role models, mentors, or be involved in experiential educational externships, internships, or formal training.

2. The AHECs have enrolled a number of minorities in AHEC-sponsored primary care medical residency training programs. Efforts will be made to maintain this accomplishment where it has occurred, and to increase enrollments in the other programs.
3. Efforts will also be made to expand the participation of minority health professionals and support personnel at AHEC-sponsored programs. Specific attention to the needs of minority health personnel will be encouraged as will the design of programming that emphasizes the special health care needs and problems of minorities and disadvantaged population groups.
4. Efforts will be made to provide technical assistance to community agencies and public schools as they attempt to attract minority students to

health careers and to prepare them for these careers.

5. Efforts will be made to increase collaborative relationships with those traditionally minority-oriented educational institutions that have health sciences programs. The AHEC Program will seek to stimulate joint sponsorship of continuing education programs and to increase the number of faculty from minority-oriented educational institutions who serve as faculty in programs sponsored by the N. C. AHEC Program.
6. The N. C. AHEC Program is committed to increasing minority representation on the various regional advisory committees and to continue to seek minority faculty and staff when vacancies occur.

Information and Biomedical Communications Services

Library and information services have been developed as part of a mutually supportive network with the university health science libraries, regional medical libraries, and other components of the national biomedical communication network.

Several principles have guided the evolution of statewide education and training resources and growth of the statewide network of libraries which provide information and biomedical communications services. The following principles continue to be relevant for the 1990-1995 AHEC Plan:

- The continued maintenance and further development of up-to-date libraries in each of the nine AHECs is critical to the success of the 1990-1995 Plan of the Statewide AHEC Program.
- Libraries and access to information and biomedical communications services serve many important functions, namely (1) a resource to students and residents on rotation from the university, (2) a resource for students and residents based at the AHEC, (3) a resource for faculty and staff based at the AHEC, (4) a resource for practitioners and

support personnel within the AHEC regions and (5) a resource for the statewide AHEC Program through various inter-AHEC exchange relationships.

- As with all AHEC faculty and staff, AHEC librarians and biomedical communications personnel have responsibilities at the AHEC and in each county of the AHEC region. These extramural responsibilities relate both to the provision of informational materials, and to helping each county develop an appropriate level of information services and staffing.

During the period 1990-1995, the N. C. AHEC Program will provide information and biomedical communications services through the AHEC Library and Information Services Network which (a) are integrated into the total educational effort of each AHEC, (b) serve as regional informational resources for all types of health manpower and (c) participate in national and statewide networks for the dissemination of health information.

In fulfilling this goal over the next five years, the N. C. AHEC Program will evaluate the services currently provided, will explore ways to enhance or modify current services as appropriate, and will provide new services within the constraints of available funding.

1. Continuing Information Services

- a. Resource sharing will continue as AHEC libraries disseminate information in all formats to health care providers, students, and educators. Current mechanisms for sharing resources among the libraries, such as the development and maintenance of statewide union lists of audiovisuals and serials, will continue. Cooperative collection development will be encouraged to avoid costly and unnecessary duplication of resources.
- b. Technical assistance on information resource management and outreach information services to health care agencies and educational institutions will be provided by each AHEC.
- c. In order to maintain adequate information services, the Guidelines for AHEC Library and Information Services will be reviewed and revised to reflect long-range planning of the N. C. AHEC Program and changes in information services and technologies.
- d. The AHECs will continue to promote information services and resources to health professionals in North Carolina.

2. New and Enhanced Information Services

Some of the new services and activities to be undertaken, as described below, can be provided by the network at present levels of funding.

- a. AHEC librarians will play a key role in training health care providers, faculty and students on the information management capabilities of microcomputers.
- b. The AHEC Library and Information Systems Network will identify, plan and implement a statewide electronic information system which will interface with other major networks and link the AHEC libraries to practice sites and individual practitioners.
- c. Health care consumers will continue to need current, accurate and relevant health information resources and materials. AHEC will provide these types of materials to health professionals for their use in consumer education. The AHEC library and information services network will work to develop stronger links with public library professionals through community contact, workshops and exchanges of information to assist these librarians in developing quality collections of consumer health information.

- d. As part of the effort to focus on the major health manpower and health care delivery issues which will guide AHEC programming in coming years, AHEC libraries will assess and evaluate their collections of materials in ambulatory based health professions education, aging, AIDS, health promotion, mental health, nursing, maternal/child/adolescent health and management education. Each library will develop a core collection of essential materials in a variety of formats in each of these areas. In addition, each library will develop expanded, in-depth collections of materials in one or two of these topic areas.
- e. Telecommunications technology linked with computers will be assessed for its feasibility and potential in the more efficient provision of information services: for transmission and reception of not only interlibrary loan requests, but also complete text of documents; creation and manipulation of data files; statewide lists of serials, audiovisuals, or monographs; and electronic transmission services such as telefacsimile.
- f. The role of AHEC library and information services professionals will expand to include

consultation, administrative management,
consortium coordination, information
facilitation and education.

3. Biomedical Communications Services

The N. C. AHEC Program is committed to providing appropriate teaching resources to support the AHEC teaching faculty and coordinators and other health educators in their regions. The method used to obtain effective teaching materials varies from AHEC to AHEC, some using the resources of community hospitals and educational institutions, some through AHEC-based staff. AHECs with staff expertise in biomedical communications will:

- a. produce graphics, slides, photographs, illustrations, exhibits, audio-recordings and video programs to support all facets of AHEC's educational programs;
- b. provide audiovisual equipment loan services to support AHEC's undergraduate, graduate, in-service, staff development and continuing education programs;
- c. identify academic/non-commercial audiovisual production and biomedical communication services and support cooperative agreements to

share resources and maximize use of people and equipment;

- d. advise health professionals and health care agencies on audiovisual resources and equipment to upgrade and enhance their biomedical communications;
- e. consult with health educators and faculty on innovative audiovisual teaching methods and instruct them on the use of audiovisual materials and equipment;
- f. organize, sponsor and teach workshops for health professionals and educators on existing and emerging biomedical communications technologies; and
- g. investigate new biomedical communication technologies and advise AHEC administrators and health educators of resources which could strengthen and enhance educational programs.

AHEC Organization and Administration

The North Carolina AHEC Program is committed to the continued development and evolution of an organizational structure and style of administration that utilizes its physical and human resources most efficiently in delivering educational programs and services to fulfill its mission. Maintaining North Carolina's investment in the statewide network of health professions education will demand careful attention to the philosophy of program governance, established at its inception in 1972, which will continue into the 1990s.

Program Resources and Infrastructure

In North Carolina, each AHEC is based in a community hospital or is an incorporated non-profit foundation. The governing boards of directors of these AHECs agree to accept the responsibility for health manpower development programs in a multi-county area. These programs span the continuum of education for a variety of health professionals and support personnel in a manner which reflects both regional and statewide needs while focusing on primary care. The scope of these activities and accomplishments may be reviewed in the Program's most recent Progress Report which is available from the AHEC Central Administrative Office.

The state has a network of nine regional education centers (AHECs) in partnership with the four university medical centers in North Carolina. Educational facilities which were built or renovated with AHEC support from the state of North Carolina have been in use in 33 sites since 1975. Each AHEC has affiliations in two directions. The first links each AHEC with one or more of the university health science schools. The second links each AHEC with its extended community and includes hospitals, health agencies and professional associations in each AHEC's multi-county region. As such, health practitioners in each community in the state have an AHEC available for manpower development activities.

This statewide network of regional centers for health manpower education and training involves:

- the presence of full-time medical and other health science faculty and staff based at each of the nine AHECs;
- the regular presence in the AHEC regions of visiting faculty and staff from the university health science schools and the regular presence of AHEC-based faculty at the university health science centers;
- a network of libraries which now connect almost all community hospitals to an AHEC and, in turn, to a university health science library;

- the voluntary support and participation of community physicians and other health professionals, administrators and support personnel from the AHEC hospitals and from throughout the AHEC regions; and
- the presence of a central AHEC office at the UNC-CH School of Medicine with responsibility for overall coordination of the statewide AHEC Program consistent with the mandate of the federal and state government, and with the needs of the university health science schools and the AHECs.

The AHEC network in North Carolina has grown and extended its services because of the support that has been provided by the General Assembly, community hospitals, community practitioners, and other community agencies which have provided both direct and indirect fiscal support to the Program. In addition to state funding, community resources account for an estimated 40% of the total AHEC budget.

The AHEC Program has become a statewide classroom for students, residents, and health care practitioners of all types. The quality of this classroom relies on the partnership between the academic health science center and the community service agency. This partnership has resulted in the commitment to full-time faculty in many health professions disciplines at each of the AHECs. For example, in order to provide adequate supervision for medical student

rotations and residency training, the Program involves 117 full-time medical faculty in AHEC settings. In addition to these full-time faculty there are many part-time faculty and a host of volunteer faculty from private medical practice, public health agencies, and community health settings. Approximately 30 percent of all private physicians in the state teach medical students and/or residents.

Central to the quality of AHEC-based education and training activities and central to the AHEC's ability to recruit and retain excellent faculty is the belief that the AHEC Program must stimulate and support faculty development and academic inquiry. Activities in support of faculty research and scholarship occur at the AHECs, in collaboration between AHECs, and among faculty at the AHECs and at the affiliated academic centers.

Because the physical size of North Carolina presents a challenge to communication and to the daily movement of students and faculty between the academic centers and the communities of the state, the Program has made a substantial investment in computers and other forms of communications technology for the efficient movement of this information.

It has also developed a network of transportation services. Each AHEC has motor vehicles for transportation. In addition, the Program houses Medical Air Operations. This air service consists of five twin engine airplanes that are owned by the Medical Foundation of North Carolina and operated by the AHEC Program. The Program employs six full-

time and two part-time pilots and flies about 625,000 passenger miles each year. This service is central to the Program's ability to allow faculty, who are already busy "at home" to spend time in community settings. In addition to student and resident supervision, regular participation in continuing education and consultation, medical and dental faculty from the university health sciences campuses conduct specialty consultation clinics, with AHEC support, in towns across North Carolina, bringing educational and consultative assistance to primary care physicians in underserved regions of the state. For the year ending 1989, the program supported over 3,000 clinic sessions in 78 communities.

Governance and Administration

Several principles have formed the basis for the establishment and continued governance of the multi-institutional statewide network which comprises the N. C. AHEC Program.

- The N. C. AHEC Program is a partnership between four university health science centers and nine regional educational and training centers. The essence of this partnership is mutual planning and mutual decision-making on policy issues.

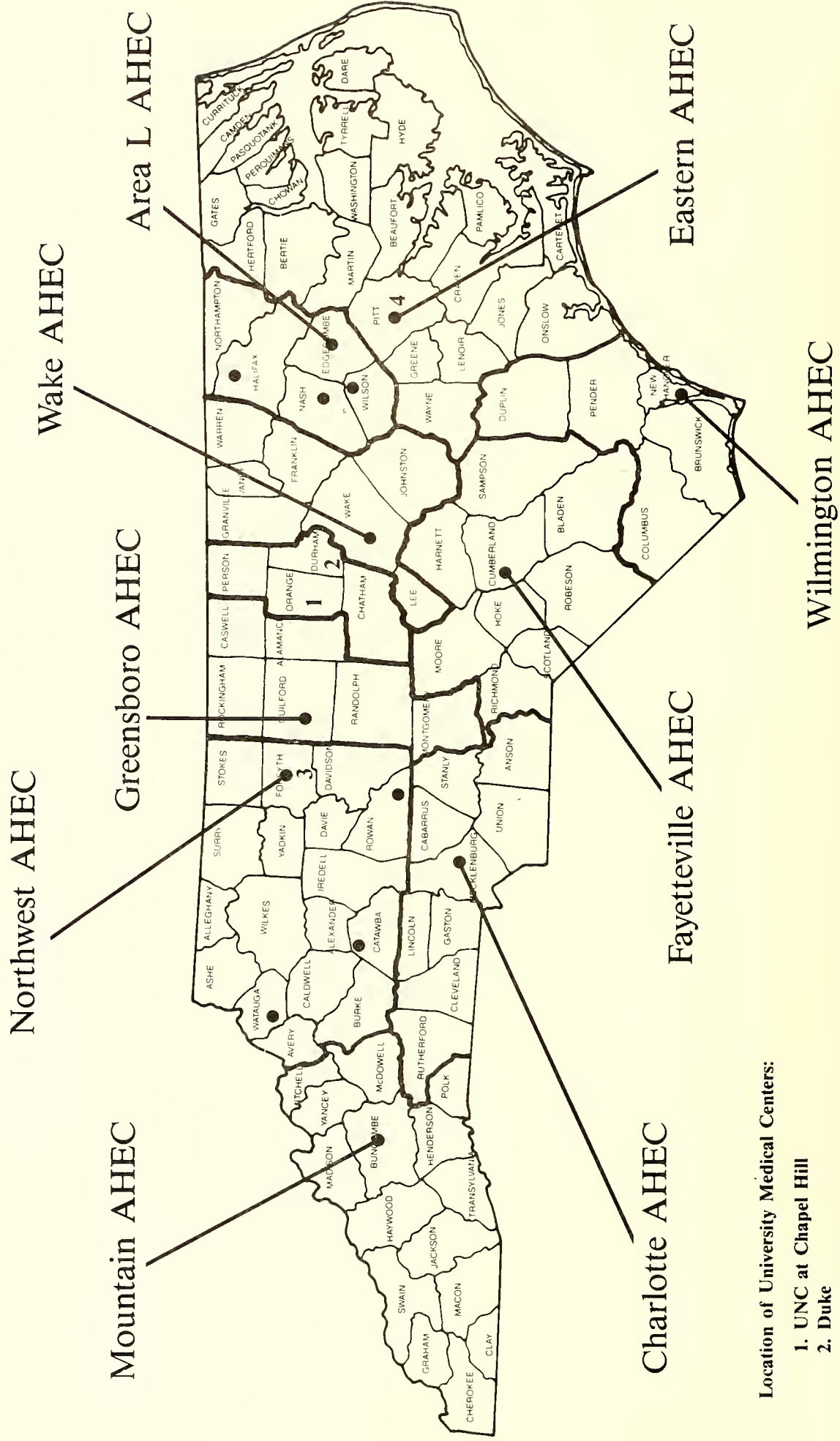
- The partnership is based on contracts between the involved institutions. Affiliation agreements also bind the UNC-CH health science center to its affiliated AHECs. These contracts and agreements recognize that (1) the responsibility for academic quality rests with the university through its AHEC-based faculty and (2) the responsibility for the efficient delivery of clinical services to the community rests with the community hospital and its medical staff.
- Decision-making with respect to program development, administrative policies and the recruitment of AHEC-based faculty and administrative staff is to reflect the mutual interests of the statewide AHEC Program, the university and the AHEC (its corporation, its faculty and staff, the primary hospital and its medical staff, and other groups, as appropriate).
- Each AHEC also has extended partnerships with a wide variety of community hospitals, service agencies, practitioner groups and planning/regulatory agencies. Maintaining collaborative relationships with appropriate federal, state and local programs that have part, or all, of their mission relating to the improvement of health manpower distribution, retention and quality is essential.

- The statewide AHEC Program and each of the nine AHECs require an effective communications system, with clear points of responsibility, authority and accountability which recognizes the complexities inherent in a multi-institutional partnership that is ultimately grounded in corporate structures in the community and at the university. While each AHEC should, and does, handle its communications in a manner which reflects local circumstances, it is important that this process be clearly identified. This is especially true for those individuals (faculty, coordinators and staff) who have made career decisions to full-time service to an AHEC.
- While the 1990-95 AHEC Plan must further stimulate better communication throughout the Program, it must also recognize that for a multi-institutional partnership to function effectively there must continue to be a minimum of bureaucracy and a maximum of flexibility to meet regional needs within broad program goals.

The N. C. AHEC Program will continue to be the responsibility of the Board of Governors of the University of North Carolina. The program is based in the Division of Education and Research in Community Medical Care in the Office of the Dean of the School of Medicine at the University of North Carolina at Chapel Hill.

Counties Served By The

NORTH CAROLINA AREA HEALTH EDUCATION CENTERS (AHEC) PROGRAM



Location of University Medical Centers:

1. UNC at Chapel Hill
2. Duke
3. Bowman Gray
4. East Carolina University



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